DOCUMENT RESUME

ED 349 161 SE 052 899

TITLE Junior High Environmental and Outdoor Education: Teacher
INSTITUTION Alberta Dept. of Education, Edmonton. Curriculum Branch.
REPORT NO ISBN-0-7732-0468-7
PUB DATE 91
NOTE 183p.
AVAILABLE FROM Learning Resources Distributing Centre, 12360-142 Street, Edmonton, Alberta T5L 4X9, Canada.
PUB TYPE Guides - Classroom Use - Teaching Guides (For Teacher) (052)

EDRS PRICE MF01/PC08 Plus Postage.
DESCRIPTORS Adolescents; Course Content; *Course Descriptions; Course Evaluation; *Course Organization; *Curriculum Design; Ecology; *Educational Resources; *Educational Strategies; *Environmental Education; Evaluation Methods; Field Trips; Foreign Countries; Global Approach; Grade 7; Grade 8; Grade 9; Integrated Curriculum; Interdisciplinary Approach; Lesson Plans; Models; Outdoor Activities; Outdoor Education; Resource Materials; Safety; Sequential Approach; Teaching Methods
IDENTIFIERS Environmental Action; Environmental Awareness; Environmental Issues

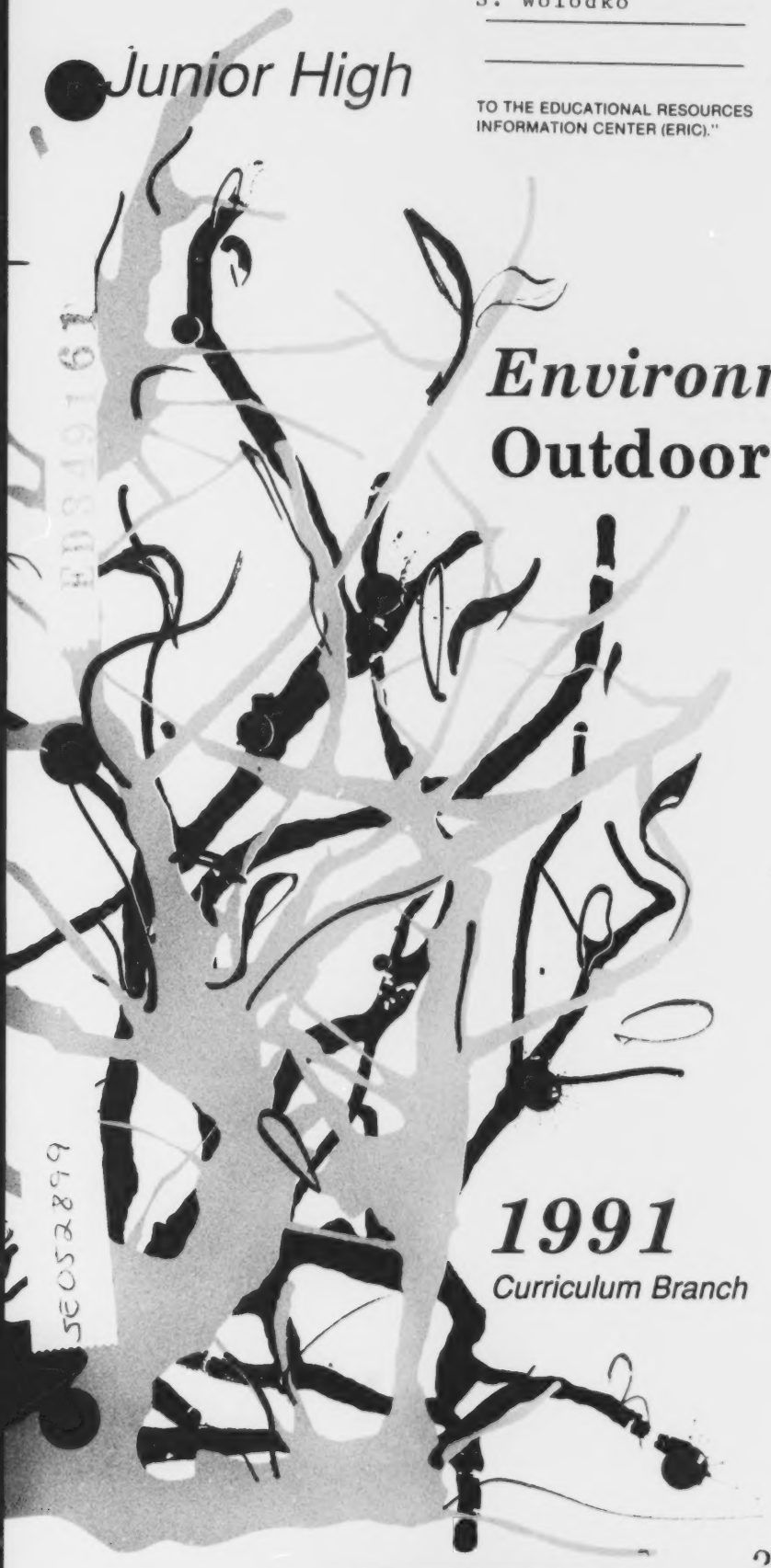
ABSTRACT

This manual for Junior High Environmental and Outdoor Education courses specifically addresses the special needs of adolescent students. A program development model is organized around six elements: (1) outdoor core; (2) personal and group development; (3) environmental core; (4) outdoor expeditions; (5) environmental investigations; and (6) commitment to action. These elements, designed to be taught either as a single course or as a sequence program of up to 3 years, are integrated to develop three strands: outdoor, personal and group development, and environmental. These strands, in turn, are developed over three levels of experience: a foundation level, an exploration level, and an empowerment level. The manual is divided into eight chapters and an appendix that contains Alberta Education's policy on controversial issues and supplementary information sources. Chapter 1 introduces the course rationale, philosophy and the development process of general learner expectations, course organization, and planning considerations. Chapters 2 and 3 include content and development outlines and a compilation of pertinent resources. Chapter 4 provides guidelines for single- and multi-year program development. Chapters 5 and 6 provide model units for introductory, intermediate and advanced level units. The last two chapters concern safety considerations and evaluation techniques. The course is designed to shift from teacher-directed learning to teacher-facilitated activities and student-initiated action. Community involvement is encouraged and guidelines for utilizing resource people for group presentations is provided. (MCO)

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
S. Wolodko
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it
☐ Minor changes have been made to improve reproduction quality
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

Junior High



Environmental and Outdoor Education

Teacher Resource Manual

1991

Curriculum Branch

Alberta
EDUCATION

ED349167
SE053899
BEST COPY AVAILABLE

JUNIOR HIGH

ENVIRONMENTAL AND OUTDOOR EDUCATION

TEACHER RESOURCE MANUAL

1991

ALBERTA EDUCATION CATALOGUING IN PUBLICATION DATA

Alberta. Curriculum Branch.
Junior high environmental and outdoor education: teacher resource manual.

Cover title: Junior high school environmental and outdoor education teacher resource manual.

ISBN: 0-7732-0468-7

1. Environmental education —Alberta. 2. Outdoor education — Alberta. I. Title.

LB1047.A333 1991 375.008 3

Copyright ©1991, the Crown in Right of Alberta, as represented by the Minister of Education. Alberta Education, 11160 Jasper Avenue, Edmonton, Alberta, T5K 0L2.

Permission is hereby given by the copyright owner for any person to reproduce this teacher resource manual or any part thereof for educational purposes and on a non-profit basis. Additional copies may be purchased from the Learning Resources Distributing Centre.

Additional copies may be obtained from the Learning Resources Distributing Centre at a nominal cost.

Learning Resources Distributing Centre
12360 - 142 Street
EDMONTON, Alberta
T5L 4X9

Note: This publication is a support document. The advice and direction offered are suggestions except where the course of studies is duplicated or paraphrased. In these instances, the text is screened in the same distinctive manner as this notice so that the reader may readily identify all prescriptive statements or segments of the document.

ACKNOWLEDGMENTS

Alberta Education expresses its appreciation to those individuals and organizations who assisted in the development and production of this manual and acknowledges the contributions of the following:

ENVIRONMENTAL AND OUTDOOR EDUCATION ADVISORY COMMITTEE

Ross Ash	Cardston Junior High School, Cardston School Division Number 2
Tom Bateman	Fish and Wildlife Division, Alberta Forestry, Lands and Wildlife
Jim Brackenbury	Alberta Education
Dennis Gogal	Steele Heights Junior High School, Edmonton Public School District Number 7
Garth Hendren	Alberta Education
Nestor Kelba	Calgary School District Number 19
Michael Mappin	Kananaskis Centre for Environmental Research, University of Calgary
Jim Martin	Communications Division, Alberta Environment
Brian Ogston	Alberta Recreation and Parks
Donna Smith	Strathearn Junior High School, Edmonton Public School District Number 7
Danica Stokoe	Glendale Junior High School, Red Deer School District Number 104
Gina Vivone	Alberta Education

CALGARY ENVIRONMENTAL AND OUTDOOR EDUCATION STEERING COMMITTEE

Al Brawn	Outdoor Pursuits Department, University of Calgary
Phil Carlton	Rideau Park Junior High School, Calgary Board of Education
Tim Cartmell	Clarence Sansom Junior High School, Calgary Board of Education
Dave George	Alberta Fish and Wildlife Division of Alberta Forestry, Lands and Wildlife
Cal Kullman	Bishop Pinkham Junior High School, Calgary Board of Education
Jim Latimer	Viscount Bennett Teacher Resource Centre, Calgary Board of Education
Bill March	Outdoor Pursuits Department, University of Calgary
Bruce McLeod	Annie Gale Junior High School, Calgary Board of Education
Ric Million	Annie Gale Junior High School, Calgary Board of Education
Terry Polton	Sedimentary and Marine Geoscience Branch of Energy, Mines and Resources Canada
Jeff Reading	Environmental and Outdoor Education, Calgary Board of Education
George Taven	Environmental and Outdoor Education, Calgary Board of Education
Ian Waugh	Kananaskis Country, Alberta Recreation and Parks

WRITERS

John Dupuis	Calgary Board of Education
Bernie Galbraith	Edmonton Public Schools
Nestor Kelba	Calgary Board of Education
Ron Sweet	Calgary Board of Education

Alberta Education also acknowledges the field test teachers for Calgary public schools and other individuals throughout the province who have contributed to the development of this curriculum.

Development Co-ordinator

Pamela Shipstone — Alberta Education

Editor

Barbara McCord — Alberta Education

Desktop Publisher

Tania Pander — Alberta Education

Artwork

Jaclyn Peebles

TABLE OF CONTENTS

Page

CHAPTER 1 – Introduction 1

Course Rationale and Philosophy 3
- Needs of the Adolescent 3
- Need for Environmental and Outdoor Education 3
- Course Characteristics 4

General Learner Expectations 4

Course Organization 4
- Course Framework 4
- Course Articulation 6
- Integration of Strands 7
- Required/Elective Components 8

Planning Considerations 9
- Environmental and Outdoor Education as Part of the School Program 9
- Community 9
- Management of Resources 10
- Environmental Impact 10
- Safety 10
- Balanced Perspective 10

CHAPTER 2 – Course Content 11

Introduction 13

Content and Development Outlines 14

CHAPTER 3 – Resources 45

Authorized Resources 47

Other Resources 62

CHAPTER 4 – Unit Planning 83

Planning a Single-Year Program 85

Planning a Multi-Year Program 85

Unit and Lesson Planning 87

- Year 1/Unit 1 The Great Outdoors 87
- Year 1/Unit 2 We're Being Audited! 88
- Year 1/Unit 3 Are We Warm Yet? 88
- Year 1/Unit 4 Cycling 89
- Year 1/Unit 5 Spring Breakup 90

Page

- Year 2/Unit 1 Can't See The Forest For The Trees 91
- Year 2/Unit 2 We're All In This Together 92
- Year 2/Unit 3 "Jack Rabbit" Johannsen . . . Here We Come 92
- Year 2/Unit 4 Wide Open Spaces 93
- Year 2/Unit 5 River Tripping 94

- Year 3: Starting Points for a Plan 95

CHAPTER 5 - Lesson Planning: A Model Introductory Unit 97

Overview, Unit 1.1 The Great Outdoors 99
Lesson 1 Journal Writing 99
Lesson 2 Introduction and Planning 100
Lesson 3 Getting to Know One Another 100
Lesson 4 Active Listening 101
Lesson 5 Initiative Tasks 103
Lesson 6 Outdoor Clothing 104
Lesson 7 Food Planning 105
Lesson 8 Fires and Stoves 106
Lesson 9 Food Preparation 106
Lesson 10 Personal Hygiene 107
Lesson 11 Becoming an Expert 108
Lesson 12 Interrelationships 109
Lesson 13 Wildlife and Me 110
Lesson 14 Into the Void 110
Lesson 15 Let the Bells Ring Out 111

CHAPTER 6 - Lesson Planning: A Model Intermediate to Advanced Level Unit 113

Overview, Unit 2.5 River Tripping 115
Lesson 1 Introduction of Unit, Learning Opportunities and Responsibilities 115
Lesson 2 Unit Planning 115
Lesson 3 Review of Lake Canoeing Safety 116
Lesson 4/5 Lake Canoeing Skills Review 117
Lesson 6 River Awareness (Session 1) 118
Lesson 7 River Awareness (Session 2) 118
Lesson 8/9/10 Introduction to River Canoeing 119
Lesson 11 Map Skills 120
Lesson 12 Wildlife Awareness 121
Lesson 13 Clean Water and Its Value 122
Lesson 14 Aquatic Invertebrate Monitoring 122
Lesson 15 Aquatic Invertebrate Monitoring: Interpreting the Results 123
Lesson 16 Aquatic Invertebrate Monitoring: Verifying the Results 124
Lesson 17 Canoe Trip Planning 125
Lesson 18 Canoe Tripping 126
Lesson 19/20
a) Improving Habitat in the Community 127
b) Monitoring and Reducing Water Consumption 127

Page

CHAPTER 7 - Safety 129

Planning and Conducting Safe Outdoor Trips 131
Risk Anticipation and Preparation 131
Ongoing Risk Assessment and Risk Reduction 133
Emergency Response 134

CHAPTER 8 - Evaluation 135

Evaluation Techniques 137
- Activity Reports and Projects 137
- Interview 138
- Self-Evaluation 139
- Observation 139
- Case Studies 139
- Expedition Evaluation 140

APPENDICES 141

Appendix A: Alberta Education's Policy on Controversial Issues 143
Appendix B: Supplementary Information Sources 145

Chapter

1

Introduction

COURSE RATIONALE AND PHILOSOPHY

"The aim of education is to develop the knowledge, the skills and the positive attitudes of individuals, so that they will be self-confident, capable and committed to setting goals, making informed choices and acting in ways that will improve their own lives and the life of their community" (*Secondary Education in Alberta* 1985).

The Junior High Environmental and Outdoor Education Course supports the above program aim. The course design reflects an integrated approach that addresses the special needs of the adolescent student and can be offered to the student over one, two or three years.

NEEDS OF THE ADOLESCENT

The adolescent years are a time of learning and adjustment. A junior high student needs to make sense of the world in a personal way, establishing a sense of self through personal challenges, and establishing new relationships with peers, others and the environment. The junior high years are the time for students to lay solid foundations, explore new horizons and apply new-found knowledge, skills and values to the world around them.

Within their experience as adolescents, junior high students actively strive to develop a sense of identity by establishing and extending personal competencies. Establishment of physical skills that are clearly and immediately recognizable is of tremendous importance to students at this level. In many instances the motivation is not only the personal pride that comes with accomplishment, but also a feeling of social belonging that comes from taking part in enjoyable and meaningful activities with others. The quest for personal identity and wholeness is of utmost importance to the adolescent.

The holistic nature of the Junior High Environmental and Outdoor Education course provides an opportunity for lifelong learning while meeting the immediate needs of the adolescent.

NEED FOR ENVIRONMENTAL AND OUTDOOR EDUCATION

At the same time as the adolescent learner is trying to come to terms with the world, the world itself is changing. Our local and global environments are undergoing transformation at a rapid pace and at a scale that is unparalleled at any time in human history. It is now apparent that all environments are subject to the actions of humankind and collectively these actions strain the ability of the earth's systems to maintain themselves in balance.

Increasingly there is a need for our students to understand the consequences of human actions on environments. The effects of lifestyles and technology are in many cases not immediately apparent to students often because they are too difficult to predict, or are removed from them in time or space. In many instances students may not be aware of where the resources we use come from, or at what cost or with what long-term consequences. It is through the study of environments in a variety of urban, rural and natural settings that these effects become most evident. The student entering a relatively undisturbed area for study and enjoyment sees in a most tangible way the effects that previous users of the area have had. With some focus of attention it can become clear how group and personal actions have environmental consequences.

This personal awareness and knowledge can be extended through further study of environments, the interrelationships within them and ways in which we can manage local and global environments for the good of all living things. The Junior High Environmental and Outdoor Education course provides an opportunity for the integration of personal experience and formal learning. The course provides for growth of the student as an individual and as a responsible citizen. It will assist students in their quest to live harmoniously with others and with the earth.

COURSE CHARACTERISTICS

This activity-based course will provide opportunities for in-depth practical studies and experiences. This direct approach should appeal to all students, particularly those who learn best from physical involvement. Students will learn by building personal skills and through assuming responsibility for individual and group welfare.

Decision-making skills will be emphasized. These will include personal, group and societal decisions and will involve students in the examination of personal and interpersonal consequences of their actions as well as the importance of their relationship with the environment.

GENERAL LEARNER EXPECTATIONS

Students will:

- demonstrate the basic knowledge, skills and attitudes necessary for safe, comfortable, outdoor experiences in all seasons
- demonstrate understanding, respect and appreciation for self, others and their views
- demonstrate an awareness and appreciation of living things and an understanding of basic ecological processes
- demonstrate skill, judgment, confidence and sensitivity through participation in a wide range of environmentally responsible activities in outdoor settings
- develop knowledge and skills by investigating the effects of human lifestyles on environments
- develop lifestyle strategies that foster contact with the natural world, demonstrate responsibility for local and global environments, and encourage living in harmony with others.

COURSE ORGANIZATION

COURSE FRAMEWORK

The Junior High Environmental and Outdoor Education (EOE) Course may be offered as a single course at the Grade 7, 8 or 9 levels, or as a sequential program of up to three years. The course consists of six elements, each stemming from one of the six general learner expectations. The course elements are:

- Outdoor Core
- Personal and Group Development
- Environmental Core
- Outdoor Expeditions
- Environmental Investigations
- Commitment to Action

A balanced treatment of these six elements is to be achieved in this course. Each of the elements must be addressed directly each year the course is offered. As students progress from the first year to a second or third year of the course, the relative emphasis on each of the elements will change. In the first year the major emphasis is on course elements at the foundation level; in subsequent years the emphasis is increasingly at the exploration and empowerment levels.

The six elements work together to develop three strands: outdoor, personal and group development, and environmental. Each strand, in turn, is developed over three levels of experience; a Foundation level, an Exploration level and an Empowerment level. The relationship of these strands and levels to the required course elements is illustrated in the diagram below and on the following pages.

COMMITMENT TO ACTION

Students will develop lifestyle strategies that foster contact with the natural world, encourage responsibility for local and global environments and encourage living in harmony with others.

EMPOWERMENT

OUTDOOR EXPEDITIONS

Students will demonstrate skill, judgment, confidence and sensitivity in a wide range of environmentally responsible activities in outdoor settings.

ENVIRONMENTAL INVESTIGATIONS

Students will develop knowledge and skills by investigating the effects of human lifestyles on environments.

EXPLORATION

OUTDOOR CORE

Students will demonstrate basic knowledge, skills and attitudes necessary for safe, comfortable, outdoor experiences in all seasons.

PERSONAL AND GROUP DEVELOPMENT

Students will demonstrate understanding, respect and appreciation for self and others.

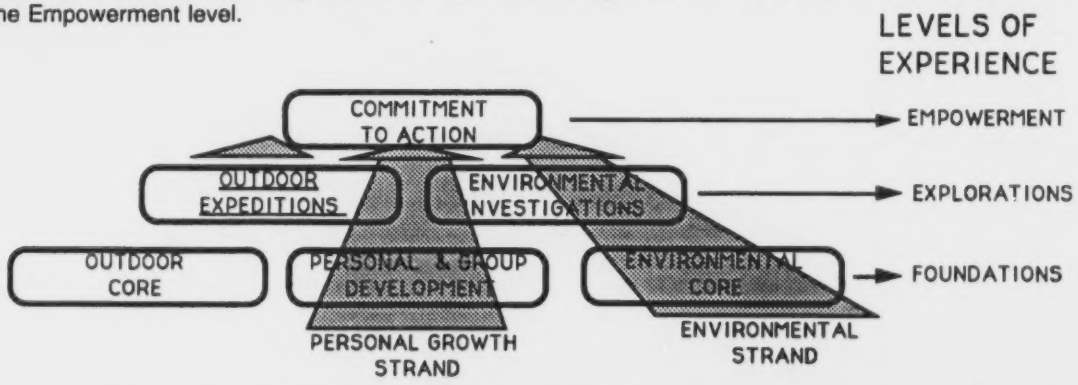
ENVIRONMENTAL CORE

Students will demonstrate awareness and appreciation of living things and understanding of basic ecological processes.

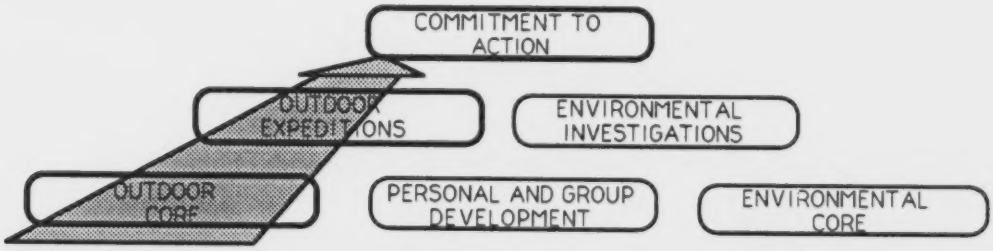
FOUNDATION

COURSE ARTICULATION

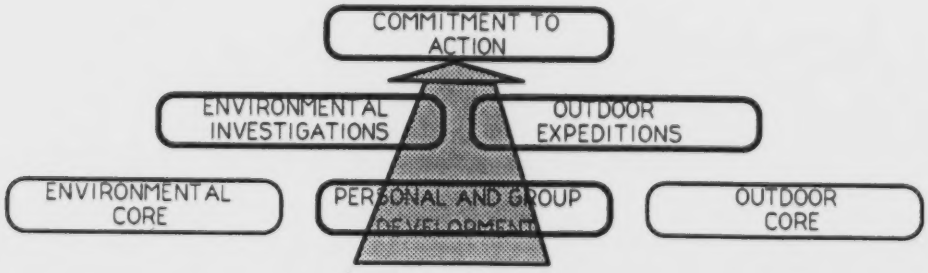
The Environmental and Outdoor Education (EOE) course of studies combines outdoor, personal and group development and environmental strands. Three levels of experience exist within the framework: Foundation, Exploration and Empowerment. Each strand begins at the Foundation level and culminates in the Empowerment level.



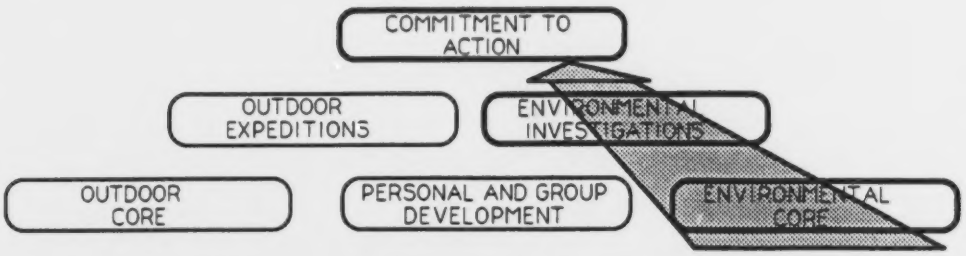
The three levels of experience represent three stages of an experiential education process: assimilation, application and integration. At the Foundation level of experience students assimilate the basic knowledge, skills and attitudes that will preface learning in the later levels. The Exploration level of experience offers students the opportunity to apply the knowledge, skills and attitudes acquired at the Foundation level to real-life situations. In the final level of the framework students incorporate their school experiences into their lives. Each strand incorporates this process of assimilation, application and integration into its development.



The **outdoor strand** begins by establishing a foundation of knowledge, skills and attitudes through the Outdoor Core. Before any field trip, no matter how short, students must have the basic concepts, skills and attitudes to ensure that the trip will be a safe, enjoyable one. The Outdoor Expeditions element of the model provides students with the opportunity to apply many of the skills acquired in the Outdoor Core. This strand culminates in Commitment To Action where students identify and act on plans to incorporate outdoor experiences into their lifestyles.



The **personal and group development strand** follows a similar pattern to the outdoor strand. At the Foundation level of experience the Personal and Group Development element establishes basic awareness and understanding of self and groups. At the Exploration level students will have an opportunity to apply this self and group understanding to problem solving in both the Environmental Investigations and Outdoor Expeditions elements. In the Commitment to Action element, students will build on, or develop as part of their personal growth, plans identified in Exploration.



The **environmental strand** begins with the introduction of material from the Environmental Core. Here, students establish a basic awareness and appreciation of local environments and an understanding of the basic ecological principles that apply generally to all environments. Building on this foundation, students are then introduced to Environmental Investigations. In this part of the course, students will apply problem-solving skills to specific environmental investigations. Students investigate current practices and the alternatives, disadvantages and consequences of each, and decide on the best option. At the Empowerment level, students work toward a personal Commitment To Action. Here, students are encouraged to establish a personal plan of action, act on it and evaluate it.

INTEGRATION OF STRANDS

The integrative nature of the Junior High Environmental and Outdoor Education Course provides for the development of several learner expectations in one activity. For example, the development of environment awareness and appreciation, which is part of the Environmental Core, can be achieved in combination with the Outdoor Expeditions element of the course. Concrete experiences in outdoor skill development can complement the ecological concepts that are required as part of the Environmental Core. The Outdoor Expeditions element further complements the environmental strand by providing students with the opportunity to see concrete examples of the effects of humans on environments. The outdoor strand supports the environmental strand by providing students with basic self-care skills that enable them to appreciate their environment rather than being preoccupied with the cold or lack of food.

Development of the Empowerment level of the course grows out of previous work in Exploration and Foundation. As a culmination of the outdoor strand, the course encourages students to maintain their skills so that they can continue having contact with the natural world. Such contact leads students to greater awareness and appreciation of their environment, thereby increasing the likelihood that they will act responsibly on its behalf. The environmental strand leads students to look at the effect that their lifestyle has on the environment and leads to positive personal action. Through their awareness and appreciation of environments and their understanding of ecological principles, students can act with sensitivity to environmental concerns in their communities. The personal and group development element asks that students live in harmony with themselves and others. In doing so, their outdoor activities will be enriched and their environmental actions will be more effective.

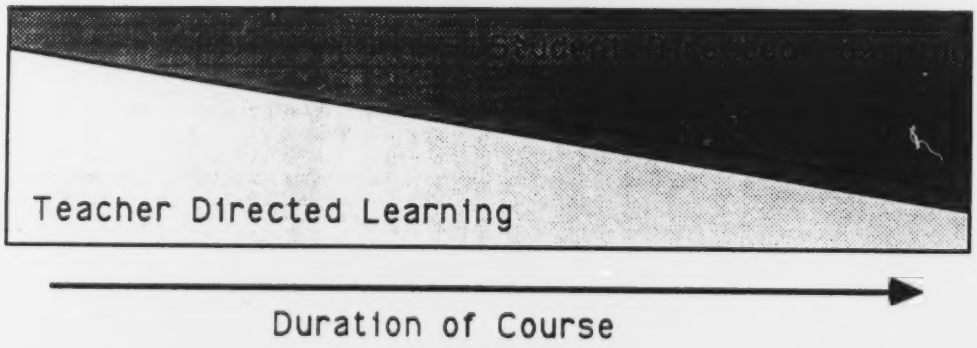
REQUIRED/ELECTIVE COMPONENTS

The course has a required component and an elective component, defined as follows:

- The required component encompasses the knowledge, skills and attitudes that all students should be expected to acquire. This component of the course will be reflected in learning experiences provided for all students.

- The elective component provides opportunities to adapt and enhance instruction to meet the diverse needs, abilities and interests of individual students. It provides enrichment and additional assistance to individual students as necessary. This component of the course is to be reflected by learning experiences designed and selected for students' individual characteristics.

As the program develops it will undergo a shift from teacher-directed learning in the initial phases to teacher-facilitated activities and student-initiated action. In the first unit students will be dependent on the teacher to provide expertise. For example, the teacher provides the information for awareness and knowledge of Ecological Processes. By examining their values in light of this new awareness and knowledge students are more likely to move willingly into problem solving and action.



The same process of students assuming greater responsibility during a unit should be applied to a full-year program and to a three-year course of studies. The teacher will be the best judge of how much responsibility classes or individual students can assume. By giving students increased responsibility as they move through the environmental, personal growth and outdoor strands the likelihood of students making lifestyle decisions and acting on them will be increased.

PLANNING CONSIDERATIONS

ENVIRONMENTAL AND OUTDOOR EDUCATION AS PART OF THE SCHOOL PROGRAM

The Environmental and Outdoor Education course may be offered in grades 7, 8 or 9. Course subject matter may also be as a three-year course sequence. Where the course is offered over multiple levels, the learning outcomes for each course remain the same, but there will be differences in the level of expectations, the outdoor pursuits selected for study and the environments selected for study.

The number of levels over which the course is offered may be established according to student demand for the course. In cases where there is only a small demand spread over several grade levels, a combined class with students from all three grades could be the basis of organization. Where such a multigrade class involves students who may enrol in the course again at a later level, the teacher will need to design a flexible course to meet the needs of all students. Implementation of a student leadership program may be helpful in providing challenge for the more advanced students.

The nature of the school timetable and the school philosophy will help determine the length of the periods, the possibility of double classes, scheduling of classes adjacent to lunch break or dismissal, the feasibility of field trips, etc.

COMMUNITY

The community is a major stakeholder in education and can be an effective partner in the education process as well. The use of community members and resources should be an integral part of the Environmental and Outdoor Education program. Local, provincial and federal governments offer a wide range of services and resources as do local clubs, service groups and institutions. Parents and volunteers can assist teachers on trips to fulfil student/leader ratios.

Teachers should have clear guidelines for selecting resource people and the content they might present. Teachers must ensure that the students have the opportunity to hear a variety of perspectives on any issue. A suggested list of guidelines for resource people who want to make presentations to students are:

1. Appropriateness of Presentation: The presentation must be consistent with the level of the group.
2. Pedagogy: The presentation must display sound educational practice.
3. Fairness of Opportunity: The presentation cannot discriminate against particular populations.
4. Need: The activity should not duplicate what is already taking place.
5. Motive or Hidden Agenda: The purpose and benefits of the activity must be clearly stated.
6. Screening: References and evaluations must be available on request. Auditions and interviews might be conducted
7. Extra-Curricular Involvement: Consideration must be given as to whether the presentation would be best suited as a curricular or extra-curricular activity (e.g. noon hour presentation to entire school).
8. Cost: Time and financial costs must be considered by the presenter and not become a burden for the participants (school and/or students). Any anticipated costs should be disclosed beforehand.
9. Health and Safety: Participants must be aware of and be protected from the hazards related to any activity.
10. Exploitation: Activities must NOT, in any way, take advantage of the students as a captive audience.

The teacher should use as many community resources as possible and letting the community know about plans and specific needs can generate unexpected help.

MANAGEMENT OF RESOURCES

Budgets for Environmental and Outdoor Education should be established based on objectives, course requirements, and community and school support. Equipment and transportation are two of the most common logistical and budgetary problems a teacher faces when preparing for a field trip.

Some equipment options available include purchasing, renting, borrowing or constructing equipment. Factors to consider when deciding these options include: availability of capital, maintenance and storage capabilities, proximity of rental facilities, rental fees, loan pools, availability of gear from other organizations, possibility of joint purchases with other organizations, and availability of the resources to design and construct equipment.

Transportation options include busing, parent or volunteer drivers, public transport and student-powered transportation such as cycling. Factors to consider when arranging transportation include board policy on volunteer drivers, costs, availability of transportation and proximity of field trip site.

ENVIRONMENTAL IMPACT

Environmental impact has many interpretations. The most important factor to consider is the ability of the environment to recuperate from impact. Fragile or high use areas cannot regenerate themselves quickly enough between times of use to maintain themselves in a natural state. Subsequently many environmental codes and rules of conduct have evolved to minimize each individual's effect on the environment. Even in resilient, infrequently visited environments there are still many sound environmental practices that apply. Examples include selecting campsites with care, establishing latrines well away from bodies of water, storing and disposing of foodstuffs properly, and minimizing the scarring of sites by using only deadfall or using one established fire pit.

SAFETY

Safety is a prime consideration in the selection of learning activities. Students should not be put in situations where they are engaged in activities beyond their skill levels or where adequate instruction support, guidance and supervision are not provided. Assessments must be made both of the skill levels of individuals and of groups in determining appropriate activities. See Chapter 7 for further guidelines with respect to safety.

BALANCED PERSPECTIVE

In developing the environmental components of this course, students are to be provided learning experiences that reflect a broad understanding of environmental issues and concerns. Presentations of course content in a way that reflects a singular or narrow view of environmental concerns would not be consistent with learning expectations and must be avoided. For clarification of policy in this regard, please refer to Appendix A Policy Statement on Controversial Issues.

Chapter

2

Course Content

BEST COPY AVAILABLE

INTRODUCTION

This chapter includes:

- Specific learner expectations
- Sample student activities
- A list of resources that support identified student activities

Note that the learner expectations are excerpted from the course of studies. These statements identify the mandated content of the course.

Student activities and resource lists are included in this section to help teachers plan the course. Activities and resource lists are provided as service material and should not restrict other approaches that may be used to achieve the learner expectations.

Resources are listed by title only. For further information about these resources see the comprehensive list of resources in Chapter 3. Chapter 3 includes bibliographic information, sources and annotations about the content of each resource.

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
OUTDOOR CORE **Students will demonstrate the basic knowledge, skills and attitudes necessary for safe, comfortable, outdoor experiences in all seasons.** **1. Students will approach the planning of outdoor activities with a positive regard for themselves, for others and for the environment.**	• Have students participate in planning outdoor activities so they understand and recognize what is required to organize a successful outdoor experience (e.g., day or overnight trip). Cross-country ski trips Hikes Canoe trips Cycle trips The following three activities illustrate how the learning outcome might be developed through a focus on cycling. • Organize and conduct a brief cycle tour within the city or area using bike paths. (Introductory Activity) • Organize a day-long cycle tour to an out-of-city destination. Consider combining mountain biking with hiking or simple climbs; this provides an excellent opportunity for environmental activities. (Intermediate Activity) • Organize and conduct a multi-day cycle tour to a destination appropriate to the skills, abilities and limitations of the group. (Advanced Activity)	*Trip Planning*, CBE booklet Planning guides available from government and private agencies e.g., Park use manuals (see specific suggestions for planning and for site-appropriate activities) Trail guides

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
a. Students will recognize the role of outdoor activities as part of a healthy personal lifestyle.	• Discuss with students the kinds of outdoor activities that might be included as part of their classroom and personal experiences. Encourage students to consider the potential benefits of those activities for themselves and others.	*Cowstails and Cobras II*
b. Students will approach outdoor activities with an awareness of personal and group skill levels, abilities and limitations.	• Conduct a series of shorter experiences in preparation for the main event to assess the group skills, abilities and limitations. • Have students take an active role in their assessments through discussion and subsequent development of realistic goals for themselves and the group.	*Safety Oriented Guidelines for Outdoor Education* *Silver Bullets* *Project Adventure* *Trip Planning*, Section III and IV
	e.g., Cycling: 1. Short tour (five to 10 minutes) with specific directions after which discussions are held to discuss changes that should be considered: e.g., cycling techniques, specific difficulties, individual and group speed, safety considerations, body position. 2. Expand the opportunity to develop skills and skill awareness by using alternate courses, longer trips and different challenges. These excursions should be followed by discussions focusing on problems and techniques.	*Canadian Bicycling Program* *Bicycling I Course* *Cranking Out Adventure*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
c. Students will recognize the potential impact of their activities on environments they might enter and use.	• Examine the impact people have on a specific area. • Conduct research regarding the impacts humans have on a specific environment over time. • Compare human impact in an urban versus rural environment. Objectives: • Have students describe possible negative consequences for people and wildlife under conditions of crowding. • Have students identify ways people can behave to reduce negative consequences of crowding.	
	Too Close for Comfort: Students experiment with physical distance and levels of comfort in humans, estimate appropriate distances between humans and wildlife under various conditions, hypothesize about indicators of animal discomfort and summarize reasons to avoid animal discomfort through crowding.	*Project Wild* – p. 121-122
d. Students will recognize the role and importance of planning in outdoor activities. • Recognition of the role of planning in enhancing safety and enjoyment of outdoor activities. • Recognition of the needs and expectations of group members and all others affected.	• Have students analyse an accident to determine what could have been done to avoid the accident. • Discuss the kind of planning appropriate for a particular excursion. • Design appropriate checklists.	*Safety Oriented Guidelines for Outdoor Education* *Trip Planning*, CBE booklet

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
• Recognition of the scope of planning appropriate for different kinds of outdoor activities.	• Have students generate lists of necessary equipment and safety preparations for a particular expedition. Have them compare these to standardized lists. • Have students consider the role and scope of planning in a current major expedition. • Through presentations and readings, introduce general guidelines to trip preparation and safety.	Descriptions of outdoor activities in films, slides, newspapers, magazines, etc. *Trip Planning*, CBE booklet
2. Students will develop competence in trip preparation and safety.		
a. Students will develop the knowledge, skills and attitudes necessary to prepare for outdoor expeditions in ways that will ensure the safety and well-being of those involved. • Students will develop the skills to recognize and assess physical hazards imposed by: – particular terrain and conditions (e.g., avalanche, lake and river ice, and bush travel); – wildlife and plants that may be encountered in outdoor expeditions (e.g., bears, bees, ticks, non-edible wild plants);	• Using maps, photos and descriptions of a site to be visited, have students investigate potential terrain hazards, flora and fauna hazards, physiological hazards and weather hazards pertinent to a particular activity. e.g., Canoeing Terrain hazard: white water Flora and fauna hazard: cow moose with offspring Physiological hazard: hypothermia Weather hazard: wind and rainstorms • View films and slide shows of outdoor activities highlighting the hazards shown.	Site-specific maps, brochures and other descriptive literature. *Alberta Recreation Association Manual* *Red Cross Manuals:* *Avalanche Safety for Skiers and Climbers* *Weathering the Wilderness* *Hypothermia: The Silent Killer* *Canoe Tripping*, CBE booklet *Canoeing*, CBE booklet *Canoeing Alberta* *Bear Attacks: Their Causes and Avoidance*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
– hazards associated with changes in weather conditions which may affect personal and group safety. • Students will develop the skills to recognize and assess the physiological hazards associated with being outdoors (e.g., hypothermia, dehydration, fatigue). • Students will develop understanding of the precautions necessary to avoid or reapond to these hazards.	• View films or slide shows of previous trips highlighting the kinds of hazards to be accommodated. • Review guidelines for recognizing and assessing hazards for planned activities. • Role play the assessment of hazards for a planned activity. • Invite guest speakers to present information and advice on expeditions. • Present case studies describing proposed or past trips for students to analyse to identify safety concerns and precautions.	Films and slide shows, particularly of sites to be visited. *Trip Planning*, CBE booklet Guest speakers. Newspaper and magazine articles about expeditions including indication of hazards encountered and problems that occurred.
b. Students will be aware of, list and take the steps necessary to anticipate emergencies and survival situations. • Students will understand what to do in the event of becoming lost or separated from a group. • Students will develop the knowledge, skills and attitudes necessary to respond to an emergency situation, including: – first aid training; and – emergency response planning.	• Have students consider a fictitious character who does everything wrong. Through references, discussions, etc., have students determine what should have been done. • Engage students in simulation activities. Introduce and review basic first aid then immerse students in emergency response situations. Debrief each situation.	*Navigation*, CBE booklet Medicine for Mountaineering Conservation and Hunter Education Manual Mountaineering First Aid Red Cross Manuals Fire Department Personnel Ambulance Personnel

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
c. Students will develop understanding of the importance of en route organization in the outdoors (e.g., lead and sweep, regrouping procedures, pacing).	• Discuss the role of en route organization as a means of enhancing enjoyment and safety of the total group. • Initiate case studies of past expeditions. • Rotate student leaders in expeditions.	*Trip Planning*, CBE booklet
3. Students will demonstrate the knowledge and skills required for safe, comfortable outdoor living.		
a. Students will select personal and group gear for outdoor activities:	• Have students present a "fashion show" or produce a video that demonstrates appropriate equipment and its use.	*Equipment*, Alberta Fish and Wildlife Conservation Series *Personal Equipment*, CBE booklet
• Students will select personal equipment for outdoor expeditions with particular consideration to maintaining body temperature and protection from injury.	• Conduct a field trip to local outdoor stores to examine the diversity of equipment available and analyse the quality of equipment relative to expedition needs. (If not possible during class, consider assignment as a homework activity.)	Various outdoor equipment catalogues
• Students will select group equipment for outdoor expeditions to meet requirements for food, shelter, travel, emergencies.	• Invite a guest speaker from a local outdoor store. • Involve students in planning and purchasing equipment for a hypothetical field trip activity. "Give" students "x" number of dollars, and using catalogues, ask them to put together a list of equipment for the trip.	Sport-specific resources e.g., *Ski Camping* *Canoeing Alberta* *Cranking Out Adventure*
• Students will demonstrate the proper care and maintenance of outdoor equipment.	• Conduct a maintenance clinic suitable for the equipment you are using, e.g., bicycle maintenance and repair clinic for a cycle unit or theme. • Set up tents in schoolyard and inspect.	

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
b. Students will make preparations to meet food needs during extended outdoor activities by demonstrating understanding of: • Nutrition requirements. • Portability and preservation. • Food preparation techniques (e.g., cooking, fires and stoves).	• Involve students in menu planning for a hypothetical or proposed field trip. • Have students plan and carry out a schoolyard cookout.	*Safety Oriented Guidelines for Outdoor Education* *Nutrition*, CBE booklet *Fire and Stoves*, CBE booklet
c. Students will demonstrate knowledge of the techniques required for maintaining hygiene in outdoor settings in the following areas: • Water purification. • Personal cleanliness. • Group hygiene.	• Introduce and demonstrate techniques to students. • Invite guest speakers from a health department, or from national or provincial parks.	*Trip Planning*, CBE booklet
4. Students will demonstrate skills in researching, interpreting and applying the information necessary for safe route planning.		
a. Students will demonstrate advance planning skills in researching and interpreting route information by developing skills in: • Researching information from a variety of sources (e.g., maps, aerial photographs, guidebooks, journals and local experts).	• Examine maps, research books, reference information, etc. • Obtain maps, general information and route information on particular field sites to be visited. Guide students in interpreting this information.	*Safety Oriented Guidelines for Outdoor Education* Topographical sheets for areas of travel

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
• Interpreting route information (e.g., selecting reasonable destinations, estimating travel time, anticipating obstacles).	• Provide opportunities for students to identify and evaluate alternate routes and consider the time and preparations each would require. • Introduce field compasses and their use.	
b. Students will develop the skills necessary to interpret and apply route information while en route including: • Map reading skills. • Compass skills. • Terrain interpretation and route selection skills.	• Conduct schoolyard map reading and basic orienteering exercises. • Conduct grid reference activity (may be based on "bingo" concept).	*Orienteering Level I and II*, CBE booklet *Navigation*, CBE booklet Maps, aerial photographs, guidebooks, journals and local experts.
5. Students will develop skill in environmentally responsible outdoor activities appropriate to different seasons.		
a. Students will develop skill in a variety of outdoor activities and modes of travel (e.g., hiking, cross-country skiing, canoeing and bird-watching).	• Plan and carry out a sequence of skill development activities with a follow-up excursion. Areas for major focus may include the following: 1. Scope and sequence of skill development 2. Student abilities and limitations 3. Equipment available 4. Cost 5. Safety	*The Snow Shoe Book* *Cross Country Challenge – School Programs for Junior High* *Avalanche Safety for Skiers and Climbers* *The Bicycling Users Manual* *Can Bike; Bicycling Level I* *Back Country Biking in the Canadian Rockies* *Cranking Out Adventure* *Backpacking: Exploring Sports Series* *Mountaineering: Freedom of the Hills* *The New Complete Walker*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
	• Cross-country skiing. • Snowshoeing. • Hiking. • Climbing. • Bicycling. • Canoeing. • Kayaking. • Sailing. • Rowing.	*Kananaskis Country Trail Guide* *Guidebook to the Canadian Rockies* *Freedom of the Hills*, The Mountaineers *Red Cross Dry Land Boating Package* *Canoeing*, CBE booklet *Kayaking*, CBE booklet Royal Canadian Yacht Association Alberta Sailing Association Red Cross Small Craft Safety Program
b. Students will acquire and practise minimum impact outdoor living and traveling skills in the following areas: • **Trail maintenance techniques (e.g., avoidance of trail widening).** • **Campsite care (e.g., fire versus stoves, tent site selection, firewood selection).** • **Waste disposal techniques (e.g., latrines, waste water disposal, garbage).**	Set up a model campsite at a local location (park, schoolyard, etc.).	*Trip Planning*, CBE booklet *Fires and Stoves*, CBE booklet

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
6. Students will recognize the need for and develop an appropriate level of physical fitness for outdoor activities.	• Design a circuit of activities and have students practise the circuit (activities specific to a program or theme). • Initiate circuit races. • Conduct stretching exercises before an activity. • Conduct endurance activities and have students assess their own capacity to engage in sustained activity. Discuss with students the extra demands made in carrying out activities in field situations.	

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
PERSONAL AND GROUP DEVELOPMENT **Students will demonstrate understanding, respect and appreciation for self, others and their views.** **1. Students will develop respect and appreciation for self and others.** **a. Students will recognize themselves as individuals and as members of a group.** **b. Students will recognize that individuals have personal lifestyles and beliefs which help define who they are.** **c. Students will recognize personal competencies and growth in personal competencies (e.g., physical, interpersonal and problem-solving skills).**	• Present and discuss the concept of self-awareness using the Self-Awareness Model. In discussions focus on interaction of beliefs, values and attitudes. • Discuss relationship between attitudes, values and behaviour using situational examples. • Develop a student activity newsletter. • Engage students in practical problem-solving activities.	Peer Support AADAC – p. 50-56 Peer Support AADAC – p. 57-58 Peer Support AADAC – p. 58-60 CBE Peer Booklets *Silver Bullets* *New Games* *More New Games*
2. Students will demonstrate skill at setting realistic goals. **a. Students will demonstrate willingness to expend effort to achieve personal and group goals.**	• Initiate planning for outdoor core activities and outdoor expedition activities. Have students assess their skills relative to planned activities including tasks and environmental investigations as well as outdoor pursuits. • Initiate active participation by students in a variety of activities that highlight each area, e.g., Journals: *Wild Words: A Journal Making Activity*.	*Silver Bullets* *Bottomless Bag of Tricks*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
b. Students will demonstrate adaptability and flexibility in responding to unanticipated events.	• Flexibility and adaptability are developed through students' participation in activities associated with expeditions or investigations and initiative tasks. Focus student attention in this area through questions asked (in particular, question students on alternatives they have considered).	*Communication Skills I* *Silver Bullets* *New Games* *More New Games*
3. Students' personal communication skills will be enhanced.		
a. Students will demonstrate skills in communicating intents and ideas both verbally and non-verbally.	• Have students participate in a variety of activities emphasizing verbal and non-verbal communication skills, i.e., active listening/body language/the interpersonal communication process/communication skills.	*Communication Skills I*
b. Students will recognize the effects of their communication and actions on others.	• Through discussion of activities, provide students with opportunities to recognize the importance of understanding other perspectives, e.g., *We All Have Different Values, Beliefs and Attitudes; Openers; Wildlife Issues: Community Attitude Survey; The Interpersonal Gap; The Pinch Theory.*	*Peer Support* *Communication Skills I* *Project Wild*, p. 29-30 *Communication Skills I*
• Students will recognize and accept that the reactions of others may reflect a different perspective than their own. • Students will demonstrate sensitivity to others.		

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
4. Students will demonstrate an awareness of the relationship of individuals to groups.		
a. Students will demonstrate awareness of human needs for contact and acceptance by others. **b. Students will demonstrate awareness of needs for personal space and privacy.**	• Involve students in a variety of group dynamic activities demonstrating individual roles in groups and group interaction, i.e., definition of a group, basic needs of individuals in groups, understanding people through strengths, task and maintenance functions.	*Silver Bullets* *New Games Book* *Group Relations I*
c. Students will demonstrate awareness of different roles that individuals play within groups and the interdependency of those roles.	• *Trust Falls* – p. 80: A structured dramatic group trust exercise. Emphasize safety. Starting from the ground is recommended. • *Electric Fence* – p. 136: A co-operative problem-solving approach to transport a group over an imaginary fence. • *Amoeba Race* – p. 159: Co-operative group fun race.	*Silver Bullets*
d. Students will recognize the nature of groups as defined in particular situations by enduring relationships (e.g., within Native society, the extended kinship relationship of individuals to family, tribe and the environment).		
5. Students will demonstrate understanding of group process and develop skills in group process.		
a. Students will demonstrate awareness and responsibility for their actions as members of a group. **b. Students will demonstrate ability to assume different roles within a group.**	Initiate activities focusing on group process and the individual's role in it; i.e., expectations.	*Group Relations I* *New Games Book* *Holistic Leadership Development Model*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
ENVIRONMENTAL CORE **Students will demonstrate an awareness and appreciation of living things and an understanding of basic ecological processes.**		
1. Students will demonstrate knowledge, skills and attitudes regarding the diversity of environments and life forms within those environments.	• Have students conduct research on one or more animals found in an environment to be studied. • Have students observe, describe and record their observations in a written and visual form; e.g., *Wild Words: A Journal Making Activity*, p. 9-11.	*Wildlife Identification* *Wildlife Management* *Alberta Fishing Education Program* *Project Wild*
a. Students will demonstrate awareness of local and global environments by developing:	• Have students record wildlife by drawing; e.g., *Drawing on Nature*, p.67-68.	*Project Wild*
• Skill in observing and describing an environment based on first-hand observations.	• Prepare for visits to local environment by studying environmental resource material. • Have students observe and investigate a local environment.	*Ecology Studies of Lakes in Alberta: Water Literacy Series* *Investigating Terrestrial Ecosystems*
• Knowledge of some distinguishing features of local and global environments.		Alberta Recreation and Parks natural regions posters. Boreal forest Aspen parkland Rocky Mountains Prairie *Earthwalks*
• Knowledge of the diversity of life found within these environments.	• Have students identify components of habitat and how they relate to various species of animals by making and playing a card game; e.g., *Habitat Rummy*, p. 51-56.	*Project Wild*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
• A caring attitude for environments and for the diversity of life forms found within them.	• *A Dozen Touches:* Students collect a dozen touches in "touch boxes" (egg cartons) and then share the touches as they try to decipher two secret words.	
	• *Snow Steps:* Students make snow steps in fresh snow ending up in a sharing circle where they share natural treasures.	*Song of Winter* *Snow Scenes* *Snow Sculptures* *Whiffs*
	• Have students imagine themselves as animals, then write poems; e.g., *Animal Poetry*, p. 13-14.	*Project Wild*
• An ability to describe the value of these environments to themselves and to others.	*If Money Won't Buy It* – p. 109-113: Students consider the effect of economic decisions on natural resources and realize that lifestyle activities differ in their degree of environmental impact.	*Living Lightly on the Planet* *Environmental Education – Values for the Future*
b. Students will recognize that they as individuals are part of a complex global environment and recognize that they both affect and are affected by their environment.	• *What's In That Suitcase?*	
	• Students take an imaginary trip to a planet with no life. Students are forced to choose between several items of varying importance with the intent of creating a workable ecological system.	*Living Lightly on the Planet*
• Human life and lifestyles are dependent on environmental resources.	• Have students view the film "Lorax" and respond to questions that focus their attention on resource use, environmental impacts, lifestyles and decision making.	*The Lorax*
	• Have students design a spaceship that will enable inhabitants to survive a three-week exploratory trip to the moon.	*Children Solve Problems*
• Humans influence environments through direct and indirect means.		

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
2. Students will demonstrate an awareness of the interactions within environments and understanding of the interconnectedness of the earth's systems. **a. Students will demonstrate skill in identifying interactions and ongoing changes within an environment by:** • **Interpreting evidence of interaction of a living thing in its environment.**	• Have students observe and describe evidence of plant growth being affected by the particular conditions in which the plant is found (e.g., light conditions, soil conditions, crowding). • Have students observe evidence of insect or other animal life living on a tree or shrub. Collect and observe samples of insects by placing a sheet of plastic under the plant and tapping branches with a stick. • Have students compare the environment on or near a trail with a relatively undisturbed environment a few metres away. • *Get Connected:* As a group activity, create a simulation of an ecosystem in which students take on various biotic and abiotic roles e.g., sun, rain, wind, various animals, various plants. Use a string to bind and connect components of the system together wherever clear ecological connections can be identified. • Have students examine advertisements and assess their environmental impact. Also have students redesign advertisements to make them more sensitive to environmental realities; e.g., *Less is More* (p. 106-108). • *Carrying Capacity* – p. 221: Students become herds of animals seeking food in this simulation activity.	*Environmental Education – Interdisciplinary Concepts and Activities* *Project Wild*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
• Interpreting evidence of human effects.	• *Which Niche?* – p. 151: Students compare ecological niches with careers in their community.	
	• *To the Highest Bidder* – P.34-37: Students engage in a land auction as they represent various interest groups (role-play scenario).	*Living Lightly on the Planet*
	• Role play a scenario in which students simulate the shift from rural to urban lifestyles. Discuss with a follow-up focus on the impact of modern lifestyles on the environment; e.g., *From Steam Engines to Suburbs*, p. 38-43.	
	• *City Lifelines: An Urban Ecosystem* – p.92-96: Students represent various components of an urban ecosystem and learn the connectedness of this specialized system.	*Living Lightly on the Planet*
b. Students will demonstrate awareness of linkages between human actions and the earth's systems by recognizing that:		
• Natural systems cause materials generated by humans to be spread through the environment. • Some materials released into the environment may be concentrated through food chains and by other natural food processes. • Many technologies and materials developed by humans are new and their effects are not fully known. • The effects of materials on the ecosystem and on particular living things are often difficult to detect.	• *Connection Inspection:* A role-play simulation in which students portray a working ecosystem. Extend the activity by having students consider ways in which human-made materials might be spread through the environment. • Have students consider the effects of various pesticides from the perspective of particular animals and animal populations; e.g., *Deadly Links*, p. 123-126. • Have students identify, describe and evaluate possible positive and negative effects on wildlife from fires; e.g., *Fire Ecologies*, p. 11 (see also p. 29).	*Conceptual Encounters*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
3. Students will demonstrate an understanding that environments change over time, by identifying and describing examples of the following concepts:	• *Museum Project:* Students analyse the contents of natural artifacts in suitcases and attempt to date the items by placing them on a timeline.	*Conceptual Encounters II*
a. Students will recognize natural changes in environments (e.g., seasonal changes, geological changes, succession, extinction).		
b. Students will recognize changes that result from human use of environments including:	• Have students become familiar with threatened and endangered species through research and classification activities; e.g., *Here Today, Gone Tomorrow*, p. 115-118 (see also p. 173).	*Project Wild*
• Changes due to personal and group activity in the environment. • Changes that result from human construction (e.g., roads, buildings). • Changes that result from extraction or harvesting of natural resources.	• Have students consider both high and low-impact ways of removing resources from the environment.	*Operation Lifeline* See suggested activities and resources starting on p. 1:1, 2:1, 3:1, 4:1, 5:1, 6:1.
• Changes that result from addition of materials to environments.	• *No Water Off a Duck's Back* – p. 119: Students conduct experiments concerning the effects of oil spills on birds. A general discussion on the impact of pollutants on life forms follows.	*Project Wild*
4. Students will demonstrate an understanding of the air, water and soil cycles by identifying and describing examples of the following concepts:	• *Cycle Factory:* Students act out the various components of the air, water and soil cycles as they make a "tree" grow.	*Conceptual Encounters II*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
a. The materials that make up living things are recycled continuously. • All living things eventually die and are recycled. • All living things produce wastes. • These wastes become part of the environment. • Humans play a major role in the generation of wastes. – There is an explosive growth of human-generated wastes resulting from application of recent technologies and lifestyles. – The ability of natural systems to recycle human-generated wastes is limited by the form of these wastes, by their quantity and by the rates at which natural systems can recycle materials.	• Have students research and report on the life cycles of some common plants and animals found in an environment to be studied. As part of this activity, have students identify materials from the environment that the plant or animal uses (e.g., food sources), and also identify how the waste products and living material of the plant or animal are used and recycled by other living things in the environment. • Identify and compare wastes in natural environments with wastes produced as a result of technological processes and consumer products. Identify some of the major components in each. Evaluate the potential usefulness of each component as a source of nutrients for living things in an environment. Also identify materials that may be harmful and poisonous to particular living things.	Encyclopedias and other library resources.
b. Air, water and soil are important mediums for the exchange of materials between living and non-living systems. • Soil plays a major role in the recycling of materials.	• *Real or Processed Water* – p. 19-38: The water cycle and man's effect on it is carefully explained. • Simulate the soil cycle in a physical activity; e.g., *Cradles to Coffins*. • Have students draw a picture of a soil profile with plant roots in place and showing some organisms that live on and in the soil. Have students write notes to identify ways that soil nutrients are used and ways these nutrients are replenished.	*Blueprint for a Green Planet* *Sunship Earth* *50 Simple Things You Can Do To Save The Earth*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
• The water cycle provides a source of water for living things and a medium for exchange of materials and gases. • The balance of carbon dioxide and oxygen in the atmosphere is linked to the life processes of plants and animals.	• Simulate the water cycle in a physical activity; e.g., *Sun's Bucket Brigade*. • Have students draw a picture of a local environment showing the water cycle in that environment (by use of arrows and by labelling points where evaporation, condensation and runoff take place). • *Best Deal on Earth:* A city of the future is visited and the importance of clean air is experienced. The air cycle is demonstrated.	*Sunship Earth* *Sunship Earth*
5. Students will demonstrate the understanding that the sun is the primary source of energy on Earth by identifying and describing examples of the following concepts:	*Chain Gang* – p. 136: Students take part in the "chain gang relay" in acting out the movement of energy through a food chain.	*Sunship Earth*
a. The sun is the source of energy for all biological processes.	*Food Factory* – p. 112: Students crawl inside a giant leaf to discover the process of photosynthesis.	*Sunship Earth*
• Plants have the ability to capture and convert the sun's energy into biologically useful materials. • Sunlight energy is stored by living things. • Sunlight energy flows through food chains from producers to consumers to decomposers.	*Solarville:* Students act out a journey from the sun to the earth as they follow the path the sun's energy takes. The activity then leads them through ordering a pizza to illustrate the true costs of various types of stored energy.	*Conceptual Encounters II*
b. Sunlight energy powers non-living processes on the earth including the air, water and soil cycles.	Students role play various animals in a food pyramid as they participate in a wide game.	*Animal Game* *The Energy News Kit*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
OUTDOOR EXPEDITIONS **Students will demonstrate skill, judgment, confidence and sensitivity through participation in a wide range of environmentally responsible activities in outdoor settings.**		
1. Students will demonstrate skill and judgment while participating in outdoor expeditions.	• Have students consider the role of each of the following when planning for safe and enjoyable outdoor expeditions. 1. Leader competence and experience. 2. Student abilities: skill level, previous experience, physical ability. 3. Safety/emergency procedures. 4. Time available. 5. Equipment available. 6. Weather, seasons. 7. Natural and other hazards. 8. Group size and volunteer support. 9. Transportation. 10. Cost.	Route guides appropriate to trip/expedition Topographical maps First aid manual
a. Students will apply trip preparation skills developed in the Outdoor Core to the level required for their outdoor expeditions by applying skill such as en route organization, hazard evaluation, emergency response, and personal and group hygiene.		
b. Students will apply environmentally responsible outdoor living and travelling skills in an expedition setting by demonstrating use of personal and group gear, food preparation skills, route finding skills, and travelling skills required for an expedition (e.g., canoeing, cycling, skiing, minimum impact camping skills).	• Provide field trip and schoolyard activities that require students to exercise, evaluate and improve the skills that have been introduced. All activities must be supervised and be within the scope of the students' competence.	*CBE Fires and Stoves* *CBE Canoe Tripping* *Dryland Boating: A Resource Manual for Boating Safety Instruction*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
c. Students will make use of their skills and make reasonable judgments in selecting and carrying out activities relative to their skill levels and the hazards involved. • **Students will consider physical hazards such as terrain, plants and animals, and weather.** • **Students will consider physiological hazards such as hypothermia, frostbite and dehydration.**	• Provide schoolyard and field trip activities in which environmental hazards are simulated, and students given the opportunity to identify and evaluate their responses.	*Medicine for Mountaineering* *Mountaineering First Aid: A Guide to Accident Response and First Aid Care*
2. Students will demonstrate a positive self-concept and an appropriate regard for others in outdoor activities by:		
a. Establishing and addressing personal goals and challenges within the context of an outdoor expedition.	• Journals and log books. • Briefs and debriefing activities.	
b. Being aware of their feelings, beliefs and expectations regarding their outdoor experiences.	• Solitude, quiet spots. • Sharing Circles: The group sits and shares their thoughts regarding a question suggested by the leader; e.g., What is one word to describe your day?	
c. Being aware of and concerned about the needs, wants and welfare of others.	• Have students switch packs and gear to develop an appreciation for others' efforts.	

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
3. Students will demonstrate the development of skills in group problem solving, group living and in carrying out group activities.		
a. Students will demonstrate the development of skills in group decision making and problem solving.		
• **Students will participate and contribute to group decision making.**	• Present a hypothetical trip problem for students to solve within a role-playing group activity. • Involve students in all aspects of expedition preparation, operation, debriefing and cleanup. • Initiate a routine of regular student meetings and discussions to deal with plans and problems. • Have students identify times and activities where individual preferences can be accommodated, and identify other times and activities where group decisions must be made and adhered to. • Have students evaluate how much margin of error is acceptable (e.g., time, distance). • Let students lead.	*Group Relations 1* *Leadership Assessment 1*
• **Students will lend support to the consensus-finding process within group decision making.** • **Students will demonstrate an ability to recognize decisions that must be based on expertise or on designated group rules.**	• Have students reflect and discuss the decision-making processes they use. Are they appropriate to the tasks? How could they be improved? Do they take proper advantage of the ideas and expertise of group members?	

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
b. Students will demonstrate skills in carrying out actions as part of a group in an outdoor setting. • **Students will demonstrate skill in co-operative outdoor living activities (e.g., activities related to food and shelter).** • **Students will demonstrate skill in co-operative group recreational activities (e.g., group action in overcoming obstacles and co-operative action with a partner).**	• Have students participate in all areas of preparation, operation, debriefing and cleanup (e.g., do the shopping, pack food, meal preparation and cleanup, etc.). • Alternate chores during trip – water, cooking, wood, litter check, dishes, entertainment, route finding, cleanup.	
4. Students will demonstrate a positive regard for environments and demonstrate environmentally responsible outdoor judgment and skill in carrying out activities.		
a. Students will develop an aesthetic appreciation for the environments they visit.	• Have students "bring back an image" of a favourite spot or of something that they felt was special from one of their outdoor trips. Have students develop the images through drawings, descriptive writing (e.g., poetry) or some other means by which they express and communicate their experience. • Use photography: Have students develop a slide/tape show representative of the trip to show to parents.	*CBE Trip Planning* *Project Wild*, p. 31, 137, 139 *Drawing on the Right Side of the Brain*
b. Students will identify potential impacts of their activities on environments.	• Have students write before-and-after journal entries to document the impact they have on a campsite.	
c. Students will select environmentally appropriate approaches to carrying out outdoor activity.	• Have students list all of the environmental impacts (great and small) that may result from their excursion into a particular environment. • Have students list all of the equipment and supplies to be taken on a trip. Have students identify items that, when used, may have significant environmental impact, then note any considerations for use or alternatives that would lessen the impact.	

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
ENVIRONMENTAL INVESTIGATIONS **Students will develop knowledge and skills by investigating the effects of human lifestyles on environment.** **1. Students will develop skill in environmental investigations.**		
a. Students will demonstrate initiative and insight in identifying questions for investigation.	• Encourage students to identify ways that our everyday lifestyles affect the immediate environment in which we live, and also affect other environments at a distance from where we live.	*Good Planets Are Hard to Find*
• **Asking questions.** • **Identification of problems and issues studied.**	• Have students identify particular factors related to our lifestyles that might have positive or negative effects on environments (e.g. resources used, wastes discarded).	*The (1989) Canadian Green Consumer Guide* *Water Literacy*
	• Have students identify questions and issues for investigation.	*Northern Alberta Environmental Education Program* *Water Quality Questions*, Water Literacy Series *Investigating and Evaluating Environmental Issues and Actions*
b. Students will identify alternatives associated with environmental problems and issues studied.	• *Conserver Survey* – p. 117-120: Students become part of a survey process and interview family members about their consumer choices.	*Living Lightly on the Planet*
	• *Raters of the Planet Eco* – p. 103-105: A simulation in which students make recommendations to the inhabitants of planet Earth on environmentally conscious choices. See also pages 15-16, 17-19, 20-23, 46-49, 100-102, 114-116.	

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
c. Students will demonstrate skill in researching questions, problems and issues. • Examining background information. • Identifying perspectives on each alternative. • Identifying the consequences of each alternative.	• Have students investigate an environmental concern by conducting research, by identifying more than one perspective on the issue and by identifying possible alternative actions in dealing with the concern.	*Investigating and Evaluating Environmental Issues and Actions – Skill Development Modules.* *Living Lightly on the Planet* (1988)
2. Students will identify knowledge of strategies for responding to environmental concerns at the local, regional and global level.		
a. Students will recognize the need for co-operative action and decision making.	• Initiate a role-play activity in which students take on various roles in a land-use issue; e.g., *Cabin Conflict* p. 185-186. See also p. 183-184, 187-189.	*Project Wild* (1985)
b. Students will be aware of public policy, practices and regulations in Alberta which may help support conservation of the province's resources.	• Introduce the Alberta Conservation Strategy. Discuss strategies to achieve sustainable and environmentally responsible development in Alberta.	*Alberta Conservation Strategy: Strategic Framework in Brief* *Alberta Clean Air Act* *Alberta Clean Water Act*
c. Students will be aware of public policy, practices and regulations in the global community which may help support conservation of the earth's resources.	• Introduce the World Conservation Strategy and other international studies, proposals and agreements that involve international and global efforts to conserve resources.	*World Conservation Strategy*, 1980, Gland, Switzerland Gaia: An Atlas of Planet Management

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
d. Students will understand the following principles of conservation: • Sustained yield. • Maintenance of life supporting environments. • Maintenance of species diversity.	• Identify the three principles of the World Conservation Strategy and identify global examples of concerns that are addressed by each strategy; Sustained Yield e.g., – problem of overfishing the earth's oceans – problem of cutting forests faster than the rate of regrowth – problem of topsoil loss Maintenance of Life-Supporting Environments e.g., – degradation of water quality in lakes and oceans – question of what land is to be used for economic activity and what will be left to support natural systems Maintenance of Species Diversity e.g., – loss of range of distribution due to changes in environment – species extinction	Use of current media resources including newspapers, magazines and other periodicals is recommended. *Operation Lifeline*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
COMMITMENT TO ACTION **Students will develop lifestyle strategies that foster contact with the natural world, demonstrate responsibility for local and global environments and encourage living in harmony with others.**		
1. **Students will incorporate outdoor recreation activities as part of a healthy personal lifestyle.**	• Work with students in developing short- and long-term individual recreation plans emphasizing a "living lightly" attitude and lifestyle while incorporating outdoor expeditions, environmental investigation and a commitment to action.	*50 Simple Things You Can Do To Save The Earth* *Blueprint for A Green Planet* *Diet for a New America*
2. **Students will demonstrate appreciation of environments through respectful and considerate use of these environments.**	• Have students identify a practical environmental problem then initiate an activity where the student shows at least one way that the problem might be addressed (e.g., problems we face, p. 7-18; practical suggestions for action, p. 22-152).	*50 Simple Things Kids Can Do To Save The Earth*
3. **Students will develop and act on plans that demonstrate responsibility for local and global environments.**		
a. **Students will recognize and reflect on the impact of their lifestyles on environments.**	• Have students brainstorm a list of favourite activities and analyse their choices for environmental impact. Have students rate the activities in increasing order of impact. • Have students create pie graphs of their present, ideal and future lifestyles and analyse them for environmental impact. • Conduct a variety of lifestyle and impact assessments at home and at school.	Environmental Education Activities Manual *Living Lightly Profile – Institute for Earth Education*

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
b. Students will make responsible choices in selecting from alternative actions that may affect environments.	*Lesson 18: Energy in Our Lives:* Students identify ways they can conserve energy in their lifestyles; and recognize or point out areas in a building where energy can be conserved.	*Northern Alberta Environmental Education Program Level 2*
c. Students will develop and act on plans to minimize their negative impact on environments.		*50 Simple Things You Can Do To Save The Earth* *50 Simple Things Kids Can Do To Save The Earth*
d. Students will identify and act on opportunities in their communities to take actions that may lead to positive impacts on local, regional, national or global environments.	Develop action plans as individuals and as groups that can be readily and effectively implemented in the community.	*2 Minutes a Day for a Greener Planet* *The Canadian Green Consumer Guide – How You Can Help* *Good Planets are Hard to Find: Prescriptions for Everyday Environmental Action*
e. Students will develop skills necessary to implement effective action (e.g., researching, listening, speaking and presentation skills).	Provide opportunities for research, group work and for presentation of the findings and accomplishments in environmental activities.	*Green Future – How to Make a World of Difference* *What We Can Do for Our Environment: Hundreds of Things to Do Now* *Home and Family Guide – Practical Action for the Environment*
4. Students will develop and act on plans that will make personal growth a lifelong process.		
a. Students will make realistic assessments of their outdoor skills and strive to improve those skills in areas of personal interest and enjoyment.	• Have students conduct personal assessments and develop action plans that will lead to improvement of outdoor skills, environmental knowledge and their abilities to "live lightly on the planet."	

LEARNER EXPECTATIONS	STUDENT ACTIVITY	SUGGESTED RESOURCES
b. Students will recognize limitations in their knowledge of environments and actively strive to improve that knowledge.	• Have students identify questions they would be interested in pursuing in further activities, studies and later in life.	
c. Students will develop and act on plans to improve themselves as part of an expanding harmonious relationship with the world.	• Provide opportunities for students to identify positive activities in which they have engaged and highlight ways in which those activities showed concern for others and the environment.	
d. Students will evaluate their action within environments and plan future actions based on their past and present experience.	• Through use of log-books, notebooks or other records of their work, have students evaluate their accomplishments and identify the relationship of these to future plans. Encourage students to develop plans based on reflective consideration of their past experience and future goals.	

Chapter

3

Resources

AUTHORIZED RESOURCES

Title/Name	Alberta Clean Air Act	**Author**	
Annotation	Contains the conclusions and recommendations of the review of the Clean Air Act – a report to the Minister of the Environment. Available free on request.	**Publisher/ Producer**	Environment Council of Alberta
		Publication Date	1985
Distributor Address	Environment Council of Alberta 8th Floor Weber Centre 5555 Calgary Trail Southbound Edmonton, AB T6H 5P9	**ISBN**	
		Est. Cost	No charge direct
		Phone No.	(403) 427–5792

Title/Name	Alberta Clean Water Act	**Author**	
Annotation	Conclusions and recommendations of the review of the Clean Water Act – a report to the Minister of the Environment. Available free on request.	**Publisher/ Producer**	Environment Council of Alberta
		Publication Date	1985
Distributor Address	Environment Council of Alberta 8th Floor Weber Centre 5555 Calgary Trail Southbound Edmonton, AB T6H 5P9	**ISBN**	
		Est. Cost	
		Phone No.	(403) 427–5792

Title/Name	Bicycling Level I: Instructor's Manual, Course Handouts	**Author**	Bernhardt, Louis
Annotation	Designed for beginners and occasional cyclists. Touches on many aspects of cycling from maintenance to touring to effective cycling techniques. Encourages students to continue cycling education and enjoyment. Participant Handouts (ED04) 1.95 Instruction (ED03) 7.25 (plus 15% shipping and handling)	**Publisher/ Producer**	Canadian Cycling Association
		Publication Date	1986
		ISBN	
		Est. Cost	
		Phone No.	(613) 748–5629
Distributor Address	Canadian Cycling Association 810–1600 James Naismith Drive Gloucester, ON K1B 5N4		

AUTHORIZED RESOURCES

Title/Name	Canadian Green Consumer Guide, The: How You Can Help	**Author**	
		Publisher/ Producer	McClelland and Stewart
Annotation	Ways of saving money while saving the earth. Preface by Margaret Atwood.	**Publication Date**	1989
Distributor Address	McClelland and Stewart 25 Hollinger Road Toronto, ON M4B 3G2	**ISBN**	0771071620
		Est. Cost	$10.20
		Phone No.	(416) 751-9345

Title/Name	Canoe Tripping	**Author**	Kelba, N. et al.
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publisher/ Producer**	Calgary Board of Education
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Publication Date**	1983
		ISBN	
		Est. Cost	
		Phone No.	(403) 294-8206
		Fax No.	(403) 294-8336

Title/Name	Communication Skills I: Course Conductor Manual	**Author**	Benson, Lyle; Matishak, R.
		Publisher/ Producer	Alberta Recreation and Parks
Annotation	Focuses on the verbal and non-verbal interactions between individuals, paraphrasing, behaviour description, description of feelings and perception checks. Communication Skills I is one course of a group of three known collectively as the Leadership Development Program.	**Publication Date**	1985
		ISBN	
		Est. Cost	No charge
		Phone No.	(403) 865-4741
Distributor Address	Blue Lake Centre Box 6150 Hinton, AB T7V 1X5	**Fax No.**	(403) 865-5655

AUTHORIZED RESOURCES

Title/Name	Conceptual Encounters	**Author**	Van Matre, Steve et al.
Annotation	Focuses on developing a single ecological concept, flowing in small steps from the concrete to the abstract level of understanding. Each activity requires 1 to 1.5 hours to complete. Ideal for field trip experiences or nature centre visits. Appropriate up to end of Grade 7. (Part of the Earth Keeper Program.)	**Publisher/ Producer**	Institute for Earth Education
		Publication Date	1987
		ISBN	
		Est. Cost	$52.15
		Phone No.	(403) 246–6611
Distributor Address	Institute for Earth Education Publications Service P.O. Box 880, Station "G" Calgary, AB T3A 2G6		

Title/Name	Cranking Out Adventure: A Bike Leader's Guide to Trial and Error Touring	**Author**	Rohnke, Karl
		Publisher/ Producer	Project Adventure
Annotation	A useful guide for teachers planning on leading cycle tours. Provides good ideas on organization, camping and avoiding common pitfalls and hazards.	**Publication Date**	1977
		ISBN	0934387044
Distributor Address	Project Adventure P.O. Box 100 Hamilton, MA 01936 U.S.A.	**Est. Cost**	$5.10
		Phone No.	(508) 468–7981

Title/Name	Dryland Boating: A Resource Manual for Boating Safety Instruction	**Author**	Morley, Helen
		Publisher/ Producer	Canadian Red Cross Society
Annotation	An excellent in-class program dealing with preparation, risk, reduction and survival skills for smallcraft boaters.	**Publication Date**	1988
		ISBN	092123421X
Distributor Address	Canadian Red Cross Society 9931–106 Street Edmonton, AB T5K 1E2	**Est. Cost**	$22.70
		Phone No.	(403) 423–2680

AUTHORIZED RESOURCES

Title/Name	Earthkeepers: Four Keys for Helping Young People Live in Harmony With the Earth	**Author**	Van Matre, Steve; Johnson, Bruce
		Publisher/ Producer	Institute for Earth Education
Annotation	Four keys for helping young people live in harmony with the earth.	**Publication Date**	1987
Distributor Address	Institute for Earth Education Publications Services P.O. Box 880, Station "G" Calgary, AB T3A 2G6	**ISBN**	0917011015
		Est. Cost	$14.05
		Phone No.	(403) 246–6611

Title/Name	Earthwalks: Acclimatization Walks for a Sensory Encounter with the Natural World (Earthwalks: Earth Magic and Snow Walks)	**Author**	Hoesse, K.
		Publisher/ Producer	Institute for Earth Education
Annotation	A collection of natural awareness activities that can be used as the components of a nature awareness walk.	**Publication Date**	1980
		ISBN	
		Est. Cost	$24.45
Distributor Address	Institute for Earth Education Publications Services P.O. Box 880, Station "G" Calgary, AB T3A 2G6	**Phone No.**	(403) 246–6611

Title/Name	Ecology Studies Of Lakes in Alberta: Observation Notes	**Author**	Stoker, D.
		Publisher/ Producer	Alberta Environment
Annotation	Deals with the ecology of freshwater environments. Unit introduces human impact on lake environments and involves students in the methods and technology employed to study lakes. Workshops provided.	**Publication Date**	1988
		ISBN	
		Est. Cost	Not available yet
Distributor Address	Alberta Environment Oxbridge Place, 12th Floor 9820–106 Street Edmonton, AB T5K 2J6	**Phone No.**	(403) 427–6310

AUTHORIZED RESOURCES

Title/Name	Ecology Studies Of Lakes In Alberta: Student Book	**Author**	Stoker, D.
		Publisher/ Producer	Alberta Environment
Annotation	Deals with the ecology of freshwater environments. Unit introduces human impact on lake environments and involves students in the methods and technology employed to study lakes. Workshops provided.	**Publication Date**	1988
		ISBN	
		Est. Cost	Not available yet
Distributor Address	Alberta Environment Oxbridge Place, 12th Floor 9820–106 Street Edmonton, AB T5K 2J6	**Phone No.**	(403) 427–6310

Title/Name	Ecology Studies Of Lakes In Alberta: Student Worksheets	**Author**	Stoker, D.
		Publisher/ Producer	Alberta Environment
Annotation	Deals with the ecology of freshwater environments. Unit introduces human impact on lake environments and involves students in the methods and technology employed to study lakes. Workshops provided.	**Publication Date**	1988
		ISBN	
		Est. Cost	Not available yet
Distributor Address	Alberta Environment Oxbridge Place, 12th Floor 9820–106 Street Edmonton, AB T5K 2J6	**Phone No.**	(403) 427–6310

Title/Name	Ecology Studies Of Lakes in Alberta: Teacher's Guide	**Author**	Stoker, D.
		Publisher/ Producer	Alberta Environment
Annotation	Deals with the ecology of freshwater environments. Unit introduces human impact on lake environments and involves students in the methods and technology employed to study lakes. Workshops provided.	**Publication Date**	1989
		ISBN	
		Est. Cost	Free with workshop
Distributor Address	Environmental Education Branch Water Literacy Program 9820–106 Street Edmonton, AB T5K 2J6	**Phone No.**	(403) 427–6310

AUTHORIZED RESOURCES

Title/Name	Energy News Kit, The	**Author**	Alberta Energy
Annotation	This kit is designed to teach concepts of renewable energy and make students aware of our dependence on non-renewable energy sources. It challenges students to commit to energy-saving actions.	**Publisher/ Producer**	Alberta Energy
		Publication Date	1989
		ISBN	0864995687
Distributor Address	Alberta Energy Energy Efficiency Branch 2nd Floor, Highfield Place 10010–106 Street Edmonton, AB T5J 3L8	**Est. Cost**	No charge
		Phone No.	(403) 427–5200

Title/Name	Fifty Simple Things Kids Can Do To Save The Earth (1st ed.)	**Author**	Javna, John
		Publisher/ Producer	Andrews & McMeel
Annotation	A summary of the environmental problems we face and practical things that young people can do to make a difference.	**Publication Date**	1990
		ISBN	0836223012
Distributor Address	Gage Educational Publishing 164 Commander Boulevard Agincourt, ON M1S 3C7	**Est. Cost**	$4.25
		Phone No.	(416) 293–8141

Title/Name	Fifty Simple Things You Can Do To Save The Earth	**Author**	Earthworks Group
		Publisher/ Producer	Earthworks Press
Annotation	A summary of the environmental problems we face and practical things we can do to make a difference.	**Publication Date**	1989
		ISBN	0929634063
Distributor Address	Earthworks Press Box 25 1400 Shatuck Avenue Berkley, CA 94709 U.S.A.	**Est. Cost**	
		Phone No.	(415) 841–5866

AUTHORIZED RESOURCES

Title/Name	Fires and Stoves (Outdoor Pursuits Core Program)	**Author**	Kelba, N. et al.
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publisher/ Producer**	Calgary Board of Education
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Publication Date**	1983
		ISBN	
		Est. Cost	$6
		Phone No.	(403) 294–8206
		Fax No.	(403) 294–8336

Title/Name	First Aid (18th ed.)	**Author**	
Annotation	Comprehensive First Aid Manual	**Publisher/ Producer**	The Canadian Red Cross Society
Distributor Address	The Canadian Red Cross Society First Aid Department 737–13 Avenue S.W. Calgary, AB T2R 1J1	**Publication Date**	1943
		ISBN	092085463X
		Est. Cost	
		Phone No.	(403) 228–2169

Title/Name	Gaia: An Atlas of Planet Management	**Author**	Myers, N. ed.
Annotation	An examination of global human and environmental problems that threaten to disrupt and exhaust life support systems on earth. Solutions to better planet management are proposed.	**Publisher/ Producer**	Anchor Press/Maxwell Macmillan Canada
		Publication Date	1984
Distributor Address	Maxwell Macmillan Canada 529 Collier Macmillan Drive Cambridge, ON N1R 5W9	**ISBN**	0385190727
		Est. Cost	
		Phone No.	(519) 740–2222
		Fax No.	(519) 740–8408

AUTHORIZED RESOURCES

Title/Name	Green Future: How to Make a World of Difference	**Author**	Johnson, Lorraine
		Publisher/ Producer	Penguin Books
Annotation	Explores major environmental issues and offers practical suggestions for daily positive action.	**Publication Date**	1990
Distributor Address	Penguin Books 1220 Nicholson Road Newmarket, ON L3V 7V2	**ISBN**	0140123016
		Est. Cost	$10.40
		Phone No.	(416) 836–6730

Title/Name	Group Relations I: Course Conductor Manual	**Author**	Benson, Lyle; Matishak, Rick
		Publisher/ Producer	Alberta Recreation and Parks
Annotation	Examines how a group develops by focusing on group interactions. Group Relations I is one course of a group of three known collectively as the Leadership Development Program.	**Publication Date**	1985
		ISBN	
Distributor Address	Blue Lake Centre Box 6150 Hinton, AB T7V 1X5	**Est. Cost**	No charge
		Phone No.	(403) 865–4741
		Fax No.	(403) 865–5655

Title/Name	Home and Family Guide: Practical Action for the Environment	**Author**	Ward-Whate, Louis
		Publisher/ Producer	The Harmony Foundation of Canada
Annotation	Clear, practical information on how to tackle environmental issues in day-to-day life, recognizing that collectively we can have a tremendous influence on the environment.	**Publication Date**	1989
		ISBN	0929010019
Distributor Address	The Harmony Foundation of Canada P.O. Box 3444, Station "D" Ottawa, ON K1P 6P9	**Est. Cost**	$5.95
		Phone No.	(613) 230–7353

AUTHORIZED RESOURCES

Title/Name	Kananaskis Country Environmental Education Teaching Activity Guide: Earth Science	**Author**	Lengsfeld, R. et al.
		Publisher/ Producer	Kananaskis Country, Calgary Board of Education, Alberta Environment Research Trust
Annotation	This guidebook has three units: Earth History, Geologic Processes and Geologic Materials. Activities in each unit have been arranged by topics that elaborate on one or more key concepts of environmental education. These key concepts include: change, adaptation, ecosystems, interdependence, cycles, resources and technology. While building on the students' knowledge and skills, the activities also encourage an examination of personal values and attitudes.	**Publication Date**	1987
		ISBN	0140123016
		Est. Cost	Not determined
		Phone No.	(403) 294–8205
Distributor Address	Calgary Board of Education Environmental and Outdoor Education 5th Floor, 515 MacLeod Trail S.E. Calgary, AB T2G 2L9		

Title/Name	Leadership Assessment I: Course Conductor Manual	**Author**	Benson, Lyle; Matishak, Rick
		Publisher/ Producer	Alberta Recreation and Parks
Annotation	A series of well-planned activities that are divided into three types of skills: program skills, people skills and self-skills. The aim of this program is to train leaders to be more effective. Leadership Assessment I is one course of a group of three known collectively as the Leadership Development Program.	**Publication Date**	1985
		ISBN	
		Est. Cost	No charge
		Phone No.	(403) 427–8758
Distributor Address	Alberta Recreation and Parks 7th Floor, Standard Life Centre 10405 Jasper Avenue Edmonton, AB T5J 3N4		

AUTHORIZED RESOURCES

Title/Name	Menu Planning and Food Preparation (Outdoor Pursuits Core Program)	**Author**	Kelba, N. et al.
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publisher/ Producer**	Calgary Board of Education
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Publication Date**	1983
		ISBN	
		Est. Cost	$6
		Phone No.	(403) 294–8206
		Fax No.	(403) 294–8336

Title/Name	Navigation (Outdoor Pursuits Core Program)	**Author**	Kelba, N. et al.
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publisher/ Producer**	Calgary Board of Education
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Publication Date**	1983
		ISBN	
		Est. Cost	$9.10
		Phone No.	(403) 294–8206
		Fax No.	(403) 294–8336

Title/Name	Northern Bushcraft (expanded ed.)	**Author**	Kochanski, Mors
Annotation	This book provides practical information for everyday living in the northern forest. More than a manual, it discusses the basic skills that allow survival in challenging situations. Topics such as firecraft, axecraft, knifecraft, sawcraft, rope work, shelter and environment opportunities are discussed.	**Publisher/ Producer**	Lone Pine Publishing
		Publication Date	1988
		ISBN	0919433510
		Est. Cost	$10.30
		Phone No.	(403) 433–9333
Distributor Address	Lone Pine Publishing Suite 206, 10426–81 Avenue Edmonton, AB T6E 1X5		

AUTHORIZED RESOURCES

Title/Name	Orienteering Level II	**Author**	Kelba, N. et al.
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publisher/ Producer**	Calgary Board of Education
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Publication Date**	1980
		ISBN	
		Est. Cost	$10.20
		Phone No.	(403) 294-8206
		Fax No.	(403) 294-8336

Title/Name	Orienteering Level One	**Author**	Kelba, N. et al.
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publisher/ Producer**	Calgary Board of Education
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Publication Date**	1982
		ISBN	
		Est. Cost	$10.20
		Phone No.	(403) 294-8206
		Fax No.	(403) 294-8336

Title/Name	Personal Equipment (Outdoor Pursuits Core Program)	**Author**	Kelba, N. et al.
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publisher/ Producer**	Calgary Board of Education
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Publication Date**	1983
		ISBN	
		Est. Cost	$7
		Phone No.	(403) 294-8206
		Fax No.	(403) 294-8336

AUTHORIZED RESOURCES

Title/Name	Project Wild: Secondary Activity Guide (revised ed.)	**Author**	
		Publisher/ Producer	Western Regional Environmental Education Council
Annotation	A collection of interdisciplinary and supplementary environmental education materials emphasizing wildlife conservation. Activities are indexed by topic, grade, subject and skill.	**Publication Date**	1985
		ISBN	
Distributor Address	Alberta Forestry, Lands and Wildlife Fish and Wildlife Division Conservation Education 14515–122 Avenue Edmonton, AB T5L 2W4	**Est. Cost**	No charge
		Phone No.	(403) 427–3574

Title/Name	Safety Oriented Guidelines for Outdoor Education Leadership and Programming	**Author**	Hanna, Glenda
		Publisher/ Producer	CAHPER
Annotation	Leadership and programming standards for expeditions and backcountry travel. Topics such as qualified leadership, navigation programming standards, some activity-specific guidelines, specific activity checklist and equipment lists as well as post-trip activities and evaluation.	**Publication Date**	1986
		ISBN	0919068529
		Est. Cost	$13.50
		Phone No.	(613) 748–5622
Distributor Address	Canadian Association of Health, Physical Education and Recreation 1600 James Naismith Drive Suite 606 Gloucester, ON K1B 5N4		

Title/Name	Shelters (Outdoor Pursuits Core Program)	**Author**	Kelba, N. et al.
		Publisher/ Producer	Calgary Board of Education
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publication Date**	1983
		ISBN	
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Est. Cost**	$6
		Phone No.	(403) 294–8206
		Fax No.	(403) 294–8336

AUTHORIZED RESOURCES

Title/Name	Silver Bullets: A Guide To Initiative Problems, Adventure Games, Stunts and Trust Activities	**Author**	Rohnke, K.
		Publisher/ Producer	Project Adventure
Annotation	A text containing a series of effective activities to bring people together to build trust and to break down the artificial barriers between individuals and groups of individuals.	**Publication Date**	1984
		ISBN	084035682X
		Est. Cost	$24.15
Distributor Address	Kendall/Hunt Publishing Co. 2460 Kerper Boulevard Dubuque, IA 52001 U.S.A.	**Phone No.**	(319) 588–1451

Title/Name	Ski Trails in the Canadian Rockies: A Guide to Banff, Jasper, Kootenay and Yoho Parks (revised ed.)	**Author**	Kunelius, Rick; Biederman, Dave
		Publisher/ Producer	Summerthought Ltd.
Annotation	A complete guide to cross-country skiing in the Rockies. A good introduction to equipment and survival techniques and trails in Banff, Kootenays, Yoho and Jasper parks.	**Publication Date**	1981
		ISBN	0919934064
		Est. Cost	$6.95
Distributor Address	Summerthought Ltd. P.O. Box 1420 Banff, AB T0L 0C0	**Phone No.**	(403) 762–3919

Title/Name	Snowshoe Book, The (3rd ed.)	**Author**	Osgood, W.; Hurley, L.
Annotation	An excellent guidebook dealing with the how, why, when and where of the sport. Packed with fine illustrations and tips for the novice as well as the expert.	**Publisher/ Producer**	The Stephen Greene Press/ Penguin Books
		Publication Date	1983
Distributor Address	Penguin Books Canada Ltd. 2801 John Street Markham, ON L3R 1B4	**ISBN**	082904324
		Est. Cost	$10.20
		Phone No.	(416) 475–1571

AUTHORIZED RESOURCES

Title/Name	Sunship Earth: An Acclimatization Program for Outdoor Learning	**Author**	Van Matre, Steve
		Publisher/ Producer	American Camping Association/ Institute for Earth Education
Annotation	Includes short (20-minute) concept path activities to acclimatize students for outdoor learning. Designed for students grades 6 to 8.	**Publication Date**	1979
Distributor Address	Institute for Earth Education P.O. Box 880, Station "G" Calgary, AB T3A 2G6	**ISBN**	0876030460
		Est. Cost	$18.10
		Phone No.	(403) 246–6611

Title/Name	Trip Planning (Outdoor Pursuits Core Program)	**Author**	Kelba, N. et al.
		Publisher/ Producer	Calgary Board of Education
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publication Date**	1984
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**ISBN**	
		Est. Cost	$9.10
		Phone No.	(403) 294–8206
		Fax No.	(403) 294–8336

Title/Name	Two Minutes a Day for a Greener Planet	**Author**	Lamb, Marjorie
		Publisher/ Producer	Harper Collins Publishers
Annotation	Quick and simple things you can do to save the earth.	**Publication Date**	1990
Distributor Address	Harper Collins Publishers 1995 Markham Road Scarborough, ON M1B 5M8	**ISBN**	0002156822
		Est. Cost	$10.20
		Phone No.	(416) 321–2241
		Fax No.	(416) 321–3033

AUTHORIZED RESOURCES

Title/Name	What We Can Do For Our Environment: Hundreds of Things To Do Now
Annotation	Hundreds of ideas for things that each of us can do to protect and improve our environment.
Distributor Address	Environment Canada, Communications Branch Room 210 4999–98 Avenue Edmonton, AB T6B 2X3
Author	Environment Canada
Publisher/ Producer	Environment Canada
Publication Date	1990
ISBN	0662175352
Est. Cost	No charge
Phone No.	(403) 468–8075

OTHER RESOURCES

Title/Name	Alberta Fish and Wildlife Conservation Education Series: Equipment	**Author**	
		Publisher/ Producer	Alberta Forestry, Lands and Wildlife
Annotation	Well-illustrated manual available free for certified instructors. Ask about resources and instructor program. Teachers must be made aware that illustrations in this book depict male Caucasians only. The omissions of illustrations involving females and racial minorities may be offensive to some groups; teacher discretion advised. A request will be made to the publisher to incorporate the suggestions in the next printing.	**Publication**	
		Date	
		ISBN	
		Est. Cost	No charge
		Phone No.	(403) 427–3574
Distributor Address	Alberta Forestry, Lands and Wildlife Fish and Wildlife Division Conservation Education 14515–122 Avenue Edmonton, AB T5L 2W4		

Title/Name	Alberta Fishing Education Program	**Author**	NA
Annotation	A factual manual covering management, game fish identification, fishing techniques and equipment, cooking and handling the catch, safety, ethical behaviour and legal responsibilities in Alberta.	**Publisher/ Producer**	Alberta Forestry, Lands and Wildlife
		Publication	NA
		Date	
		ISBN	NA
Distributor Address	Mr. Dave Paplawski or George Diduck Fish and Wildlife Division Conservation Education 14515–122 Avenue Edmonton, AB T5L 2W4 or Mr. Marty Robillard or Dave George Fish and Wildlife Division 200 Sloan Square 5920 1A Street S.W. Calgary, AB T2H 0G1	**Est. Cost**	No charge
		Phone No.	(403) 427–3574 or (403) 297–6423
		Fax No.	(403) 427–5695 or (403) 161–2843

OTHER RESOURCES

Title/Name	Alberta Fish and Wildlife Conservation Education Series: Hypothermia	**Author**	
		Publisher/ Producer	Alberta Forestry, Lands and Wildlife
Annotation	Well-illustrated manual available free for certified instructors. Ask about resources and instructor program. Teachers must be made aware that illustrations in this book depict male Caucasians only. The omissions of illustrations involving females and racial minorities may be offensive to some groups; teacher discretion advised. A request will be made to the publisher to incorporate the suggestions in the next printing.	**Publication Date**	
		ISBN	
		Est. Cost	No charge
		Phone No.	(403) 427-3574
Distributor Address	Alberta Forestry, Lands and Wildlife Fish and Wildlife Division Conservation Education 14515–122 Avenue Edmonton, AB T5L 2W4		

Title/Name	Alberta Fish and Wildlife Conservation Education Series: Survival	**Author**	
		Publisher/ Producer	Alberta Forestry, Lands and Wildlife
Annotation	Well-illustrated manual available free for certified instructors. Ask about resources and instructor program. Teachers must be made aware that illustrations in this book depict male Caucasians only. The omissions of illustrations involving females and racial minorities may be offensive to some groups; teacher discretion advised. A request will be made to the publisher to incorporate the suggestions in the next printing.	**Publication Date**	
		ISBN	
		Est. Cost	No charge
		Phone No.	(403) 427-3574
Distributor Address	Alberta Forestry, Lands and Wildlife Fish and Wildlife Division Conservation Education 14515–122 Avenue Edmonton, AB T5L 2W4		

OTHER RESOURCES

Title/Name	Alberta Fish and Wildlife Conservation Education Series: Wildlife Identification	**Author**	
		Publisher/ Producer	Alberta Forestry, Lands and Wildlife
Annotation	Well-illustrated manual available free for certified instructors. Ask about resources and instructor program. Teachers must be made aware that illustrations in this book depict male Caucasians only. The omissions of illustrations involving females and racial minorities may be offensive to some groups; teacher discretion advised. A request will be made to the publisher to incorporate the suggestions in the next printing.	**Publication Date**	
		ISBN	
		Est. Cost	No charge
		Phone No.	(403) 427-3574
Distributor Address	Alberta Forestry, Lands and Wildlife Fish and Wildlife Division Conservation Education 14515–122 Avenue Edmonton, AB T5L 2W4		

Title/Name	Alberta Fish and Wildlife Conservation Education Series: Wildlife Management	**Author**	
		Publisher/ Producer	Alberta Forestry, Lands and Wildlife
Annotation	Well-illustrated manual available free for certified instructors. Ask about resources and instructor program. Teachers must be made aware that illustrations in this book depict male Caucasians only. The omissions of illustrations involving females and racial minorities may be offensive to some groups; teacher discretion advised. A request will be made to the publisher to incorporate the suggestions in the next printing.	**Publication Date**	
		ISBN	
		Est. Cost	No charge
		Phone No.	(403) 427-3574
Distributor Address	Alberta Forestry, Lands and Wildlife Fish and Wildlife Division Conservation Education 14515–122 Avenue Edmonton, AB T5L 2W4		

OTHER RESOURCES

Title/Name	Atlas of Environmental Issues	**Author**	Middleton, Nick
Annotation	Describes and explains major environmental issues of today's world including soil erosion, deforestation, mechanized agriculture, oil pollution of oceans, acid rain, overfishing and nuclear power. Excellent graphics.	**Publisher/ Producer**	Ilex Publishers Ltd.
		Publication Date	1989
		ISBN	081602023X
Distributor Address	4741 Queen Street Niagara Falls, ON L2E 2M2	**Est. Cost**	$21.95
		Phone No.	(800) 443–8323 (toll free)
		Fax No.	(212) 213–4578

Title/Name	Avalanche Safety for Skiers and Climbers	**Author**	Dafferin, Tony
Annotation	Recommended by the Alpine Club of Canada. Well organized and easy to understand.	**Publisher/ Producer**	Rocky Mountain Books
		Publication Date	1983
Distributor Address	Rocky Mountain Books 106 Wimbledon Crescent S.W. Calgary, AB T3C 3J1	**ISBN**	0969003846
		Est. Cost	$12.95 (20% discount for school libraries)
		Phone No.	(403) 249–2968

Title/Name	Backcountry Biking in Canadian Rockies	**Author**	Lepp, Gerhard; Kerr, Colynn
Annotation	A good introduction to mountain biking and the trails in western Alberta from Waterton in the south to Jasper in the north.	**Publisher/ Producer**	Rocky Mountain Books
		Publication Date	1987
Distributor Address	Rocky Mountain Books 106 Wimbledon Crescent S.W. Calgary, AB T3C 3J1	**ISBN**	0969003889
		Est. Cost	$12.95 (20% discount for school libraries)
		Phone No.	(403) 249–2968
		Fax No.	(403) 249–2968 (if manual ring until you hear fax tone)

OTHER RESOURCES

Title/Name	Bear Attacks: Their Causes and Avoidance	**Author**	Hererro, Stephen
Annotation	Describes some encounters with grizzly bears in the Canadian Rockies and how they could have been avoided. Topics such as garbage disposal, bear tolerance and characteristics, avoiding encounters, how to recognize bear signs and bear management are addressed.	**Publisher/ Producer**	Lyons & Burford
		Publication Date	1988
		ISBN	0832903779 hardcover 0888302797 paperback
		Est. Cost	$13.95/$19.95 hardcover
Distributor Address	1302 Oxford Tower 10235–101 Street Edmonton, AB T5J 3G1	**Phone No.**	(403) 426–2359
		Fax No.	(403) 426–5996

Title/Name	Bicycle Repair Book: Maintaining and Repairing the Modern Bicycle	**Author**	Van de Plas, Rob
Annotation	An excellent manual of complete bicycle care. The main focus of this book is on the touring style of bicycle.	**Publisher/ Producer**	Bicycle Books Inc.
		Publication Date	1989
Distributor Address	112 East 3rd Avenue Vancouver, BC V5T 1C8	**ISBN**	0933201117
		Est. Cost	$11.95
		Phone No.	(604) 873–6581
		Fax No.	(604) 874–2711

Title/Name	Canoeing	**Author**	Kelba, N. et al.
Annotation	One of 10 recommended support modules in the "Peer Booklet Series."	**Publisher/ Producer**	Calgary Board of Education
Distributor Address	Calgary Board of Education Physical Education Department 515 MacLeod Trail S.E. Calgary, AB T2G 2L9	**Publication Date**	1980
		ISBN	
		Est. Cost	
		Phone No.	(403) 294–8206
		Fax No.	(403) 294–8336

OTHER RESOURCES

Title/Name	Canoeing Alberta	**Author**	Macdonald, Janice E.
Annotation	Descriptions, maps, information regarding six different river systems in Alberta. Also addresses topics such as understanding rivers, personal safety, leader safety and grading rivers.	**Publisher/ Producer**	Lone Pine Publishing
		Publication Date	1985
Distributor Address	Lone Pine Publishing Suite 206, 10426–81 Avenue Edmonton, AB T6E 1X5	**ISBN**	0919433286
		Est. Cost	$11.95 + $1 shipping and handling
		Phone No.	(403) 433–9333
		Fax No.	

Title/Name	Challenge Program Cross-Country Program for Teens	**Author**	Landry, L.
Annotation	Challenge Program (13 to 17 years) Manuals $18 *Startup Package $30 *Includes one manual, five posters, two challenge crests, registration with Cross-Country Alberta and Cross-Country Canada and subscription to Challenge newsletter.	**Publisher/ Producer**	Cross-Country Canada
		Publication Date	1988
		ISBN	NA
		Est. Cost	shown
		Phone No.	(403) 453–8620
		Fax No.	(403) 453–8553
Distributor Address	11759 Groat Road Edmonton, AB T5M 3K6		

Title/Name	Conceptual Encounters II	**Author**	Institute for Earth Education
Annotation	Focuses on developing a single ecological concept, in increments, flowing in small steps from the concrete to the abstract level of understanding. Each activity requires 1 to 1.5 hours to complete. Ideal for field trip experiences or nature centre visits. Appropriate up to end of Grade 9. (Part of Sunship III Program.)	**Publisher/ Producer**	Institute for Earth Education
		Publication Date	To be published late 1990
		ISBN	TBA
		Est. Cost	approx. $57.45
		Phone No.	(403) 246–6611
		Fax No.	(403) 294–8336 Attn: Shirley Mitchell
Distributor Address	P.O. Box 3444, Station G Calgary, AB T3A 2G6		

OTHER RESOURCES

Title/Name	Cowstails and Cobras II	**Author**	Rohnke, Karl
Annotation	A revision of Karl Rohnke's classic guide to games, initiative problems and adventure activities. Updated and now includes sample curriculum (actual program outlines from schools and camps) and a chapter on leadership and debriefing. Offering a thorough treatment of Project Adventure's philosophy and approach to group activities, Cowstails II provides both the experienced practitioner and the novice with a unique and valuable resource. With photos and illustrations.	**Publisher/ Producer**	Project Adventure
		Publication Date	NA
		ISBN	084035434X
		Est. Cost	$16.50 + $2 shipping and handling
		Phone No.	(508) 468–7981
		Fax No.	
Distributor Address	Project Adventure P.O. Box 100 Hamilton, MA 01936 U.S.A.		

Title/Name	Diet For a New America	**Author**	Robbins, John
Annotation	Graphic description of current food processing procedures and how food choices affect your health, happiness and the future of life on earth.	**Publisher/ Producer**	Stillpoint Publishing
		Publication Date	1987
Distributor Address	195 Allstate Parkway Markham, ON L3R 4T8	**ISBN**	0913299545
		Est. Cost	$17.95
		Phone No.	(416) 477–0030
		Fax No.	(416) 477–9179

OTHER RESOURCES

Title/Name	Duke of Edinburgh Award in Canada: Handbook	**Author**	NA
		Publisher/ Producer	Duke of Edinburgh Award in Canada
Annotation	A challenge achievement program in the areas of volunteer community service, expeditions, hobby/skills and physical recreation. Students 14 to 25 years, able or disabled, can register and qualify for three levels of awards: Bronze, Silver and Gold.	**Publication Date**	1989
		ISBN	0905425014
		Est. Cost	NA
Distributor Address	11759 Groat Road Edmonton, Ab T5M 3K6 or Suite 010, 611–10 Avenue S.W. Calgary, AB T2R 0B2	**Phone No.**	(403) 453–8651 or (403) 237–7476
		Fax No.	(403) 453–8553 or (403) 237–7476

Title/Name	Earth Speaks, The	**Author**	Institute for Earth Education
Annotation	A collection of excellent literary works by some of the world's most respected authors, poets, ecologists and environmentalists.	**Publisher/ Producer**	Institute for Earth Education
		Publication Date	
Distributor Address	P.O. Box 880, Station G Calgary, AB T3A 2G6	**ISBN**	0917001007
		Est. Cost	$15.95
		Phone No.	(403) 246–6611
		Fax No.	(403) 294–8336 Attn: Shirley Mitchell

OTHER RESOURCES

Title/Name	Good Planets Are Hard To Find: Prescriptions for Everyday Environmental Action	**Author**	Tuer, Cindy B.
		Publisher/ Producer	Biddell Publishing
Annotation	Helpful information on how to make lifestyle changes that will protect the environment. Packed with information and suggestions for effective action. Teachers must be made aware of generalized statements and about government efforts to improve the environment (p. 22, 103, 104) as the statements present one point of view only. References to joining the organization Greenpeace (p. 64, 76) may be offensive to some groups and/or individuals.	**Publication Date**	1989
		ISBN	0969442009
		Est. Cost	$7.95
		Phone No.	(403) 245–0855
Distributor Address	Biddell Publishing 2117 Hope Street S.W. Calgary, AB T2S 2H3		

Title/Name	Greenplan, The: A National Challenge	**Author**	Environment Canada
Annotation	Informs Canadians about the most serious environmental problems they face and describes some of the programs, laws and other means through which the government will address these problems.	**Publisher/ Producer**	Supply and Services
		Publication Date	1990
		ISBN	
Distributor Address	Attn: Communications Room 210, 4999–98 Avenue Edmonton, AB T6B 2X3	**Est. Cost**	
		Phone No.	(403) 468–8075
		Fax No.	(403) 495–2478

Title/Name	Hypothermia: The Silent Killer	**Author**	Thompson, Lyn
Annotation	Discusses many of the aspects of hypothermia. Topics such as prevention, recognition, treatment in the field, emergency equipment, wilderness skills and checklists are discussed.	**Publisher/ Producer**	Detselig Enterprises Ltd.
		Publication Date	1989
		ISBN	0920490905
Distributor Address	P.O. Box G399 Calgary, AB T3A 2G3	**Est. Cost**	$9.95
		Phone No.	(403) 283–0900
		Fax No.	(403) 283–6947

OTHER RESOURCES

Title/Name	Investigating and Evaluating Environmental Issues and Actions: Skill Development Modules: A Curriculum Development Project Designed to Teach Students How to Investigate and Evaluate Science-Related Social Issues	**Author**	Hungerford, H. R. et al.
		Publisher/ Producer	Stipes Publishing Co.
		Publication Date	1988
		ISBN	087563320X
Annotation	Outlines process for building analytic and decision-making skills. Appropriate for advanced students. Teacher's guide available for $23.95—details in library list. Teachers must be made aware that the "Comments on Values and Values Clarification" statement on yellow pages 15 and 16 is contrary to Alberta Education's Controversial Issues Policy. This policy implies that it is not the teacher's task to take sides, to impose personal views or to resolve the world's problems. It is advised that teachers not use yellow pages 15 and 16 as reference material.	**Est. Cost**	$18.10
		Phone No.	(416) 593–0737
Distributor Address	Can-Ed. Media Ltd. 185 Spadina Avenue Toronto, ON M5T 2C6		

Title/Name	Investigating and Evaluating Environmental Issues and Actions: Teacher's Edition	**Author**	Hungerford, Harold
		Publisher/ Producer	Stipes Publishing Co.
Annotation	Teacher's guide to accompany student modules listed as support resources.	**Publication Date**	1988
Distributor Address	Can-Ed. Media Ltd. 185 Spadina Avenue Toronto, ON M5T 2C6	**ISBN**	087563320X
		Est. Cost	$23.95
		Phone No.	(416) 593–0737

OTHER RESOURCES

Title/Name	Investigating Aquatic Ecosystems	**Author**	Andrews, William
Annotation	Leads to an understanding of the principles of ecology. Students can start asking questions such as: Why are trout no longer found in a once favourable trout stream? What can be done to restore favourable conditions? What are the effects for damming a river to provide an artificial lake for recreational purposes?	**Publisher/ Producer**	Prentice-Hall
		Publication Date	1987
		ISBN	013503129X
		Est. Cost	$29.35
		Phone No.	(416) 293–3621
Distributor Address	Prentice-Hall 1870 Birchmount Road Scarborough, ON M1P 2J7		

Title/Name	Investigating Terrestrial Ecosystems	**Author**	Andrews, William
Annotation	Deals with interrelationships found in forests, woodlots, meadows, parks, bogs, sand dunes and other land-based ecological systems. It provides background and the procedures required to investigate such relationships in the laboratory and in the field.	**Publisher/ Producer**	Prentice-Hall
		Publication Date	1986
		ISBN	0135031869
		Est. Cost	$28.18
Distributor Address	Prentice-Hall 1870 Birchmount Road Scarborough, ON M1P 2J7	**Phone No.**	(416) 293–3621

Title/Name	Jackrabbit Ski League/Lique de Ski Jackrabbit Skill Development Program	**Author**	Landry, L.
Annotation	Cross-country ski program for 8 to 13 years old. Available in English or French. Manual $15 Games Manual $2	**Publisher/ Producer**	Cross-Country Canada
		Publication Date	1987
		ISBN	NA
		Est. Cost	shown
Distributor Address	11759 Groat Road Edmonton, AB T5M 3K6	**Phone No.**	(403) 453–8620
		Fax No.	(403) 453–8553

OTHER RESOURCES

Title/Name	Kananaskis Trail Guide	**Author**	Daffern, Gillian
Annotation	Comprehensive guide to hiking and skiing trails in Kananaskis Country.	**Publisher/ Producer**	Rocky Mountain Books
Distributor Address	106 Wimbledon Crescent S.W. Calgary, AB T3C 3J1	**Publication Date**	1985
		ISBN	
		Est. Cost	$12.95 (20% discount for school libraries)
		Phone No.	(403) 249–2968
		Fax No.	(403) 249–2968 (if manual ring until you hear fax tone)

Title/Name	Keepers of the Earth Keepers of the Earth: Teacher's Guide	**Author**	Caduto, M. and Bruhac, J.
Annotation	Native American stories and environmental activities for students.	**Publisher/ Producer**	Fifth House Publishers
Distributor Address	20–36 Street East Saskatoon, SK S7K 5S8	**Publication Date**	1989 (book) 1990 (guide)
		ISBN	0920079571 (book) 1555910408 (guide)
		Est. Cost	$22.95 (book)
		Phone No.	NA

Title/Name	Learning Resources Manual for Alberta's Provincial Parks	**Author**	
Annotation	Supports grades 1 to 9 curricula. The manual plus an additional chapter for most provincial parks are available. A new manual to complement the new junior high curriculum is being developed.	**Publisher/ Producer**	
		Publication Date	
		ISBN	
Distributor Address	Environmental Education Brian Ogston, Co-ordinator 7th Floor, Standard Life Centre 10405 Jasper Avenue Edmonton, AB T5J 3N4	**Est. Cost**	Manual $15 Park Chapters $1 each
		Phone No.	(403) 427–8758
		Fax No.	(403) 424–9492

OTHER RESOURCES

Title/Name	Living Lightly on the Planet: A Global Environmental Education Curriculum Guide: For Grades 7–9 (Volume 1) (3rd ed.)	**Author**	O'Connor, Maura
		Publisher/ Producer	Schlitz Audubon Centre
		Publication Date	1985
Annotation	Students discover some of the limits to growth as they explore population concerns and land issues. Investigations are designed to foster creativity, critical thinking and problem-solving skills. Teachers must be made aware that this resource provides limited information about Third World countries in terms of growth, land use and world hunger. A broader perspective is required when discussing such issues. Teacher discretion is advised.	**ISBN**	
		Est. Cost	$24.90
		Phone No.	(414) 352–2880
Distributor Address	Schlitz Audubon Centre 1111 East Brown Deer Road Milwaukee, WI 53217 U.S.A.		

Title/Name	Medicine for Mountaineering	**Author**	Wilkerson, James A.
		Publisher/ Producer	The Mountaineers
Annotation	A resource text (as opposed to a manual) that discusses general principles, traumatic injuries, environmental injuries and non-traumatic diseases from a backcountry point of view.	**Publication Date**	
		ISBN	0898860865
		Est. Cost	$17.95
Distributor Address	Education Division 1615 Venables Street Vancouver, BC V5L 2H1	**Phone No.**	(604) 254–7191
		Fax No.	(604) 254–9099

OTHER RESOURCES

Title/Name	More New Games Book	**Author**	Fluegelman, Andrew
Annotation	Playful ideas from the New Games Foundation. More ways for everyone to play. "Rules" for 60 new games (for two to 200 people). A valuable resource for many groups and events, schools, parks and playgrounds, company picnics, family reunions — you name it!	**Publisher/ Producer**	Headlands Press
		Publication Date	1981
		ISBN	0385175140
		Est. Cost	$15.95
Distributor Address	Special Sales 105 Bond Street Toronto, ON M5B 1Y3	**Phone No.**	(416) 340–0777
		Fax No.	(416) 340–1069

Title/Name	Mountaineering First Aid: A Guide to Accident Response and First Aid Care	**Author**	
		Publisher/ Producer	The Mountaineers
Annotation	A practical guide to backcountry emergency management. Topics such as before you go, when an emergency happens, first aid for specific conditions, evacuation techniques and emergency plans are covered.	**Publication Date**	1985
		ISBN	089886092X
		Est. Cost	$8.50
Distributor Address	Educational Division 1615 Venables Street Vancouver, BC V5L 2H1	**Phone No.**	(604) 254–7191
		Fax No.	(604) 254–9099

Title/Name	Mountaineering: The Freedom of the Hills (3rd ed.)	**Author**	Ferber, P. (ed.)
		Publisher/ Producer	The Mountaineers
Annotation	Basic essentials to the backcountry experience are discussed. Topics such as preparation, equipment, clothing, navigation, route finding, rock climbing, snow and ice climbing techniques, safety concerns and the environment are presented in depth.	**Publication Date**	1974
		ISBN	0916890015
		Est. Cost	$24.50
Distributor Address	Douglas & McIntyre 1615 Venables Street Vancouver, BC V5L 2H1	**Phone No.**	(604) 254–7191
		Fax No.	(604) 254–9099

OTHER RESOURCES

Title/Name	Natural Regions of Alberta: Poster Series: Resource Manual	**Author**	
Annotation	Contains a poster for each of five major natural regions of Alberta accompanied by a comprehensive teacher's resource manual. The manual includes student activity suggestions, grades 1 through 9.	**Publisher/ Producer**	Alberta Recreation and Parks
		Publication Date	
		ISBN	
		Est. Cost	$20
Distributor Address	Alberta Recreation and Parks 7th Floor, Standard Life Centre 10405 Jasper Avenue Edmonton, AB T5J 3N4	**Phone No.**	(403) 427–8758

Title/Name	New Games Book, The	**Author**	New Games Foundation
Annotation	A collection of games that emphasize a co-operative approach to enjoying group activities. Games are designed for two to 100 people. The games involve very little equipment. Teachers must be made aware that some students and community members may not feel comfortable with and/or approve of the close physical proximity among participants required for several games (e.g., p. 40, 57, 97, 101, 116, 117, 151, 157, 170). It is recommended that teachers carefully select appropriate games.	**Publisher/ Producer**	The Headlands Press
		Publication Date	1976
		ISBN	038512516X
		Est. Cost	$10.85
		Phone No.	(416) 977–7891
Distributor Address	Doubleday Canada, Special Sales 105 Bond Street Toronto, ON M5B 1Y3		

OTHER RESOURCES

Title/Name	Northern Alberta Environmental Education Program: Level 2: Grades 7 to 9	**Author**	
		Publisher/ Producer	Friends of Environmental Education Society of Alberta (FEESA)
Annotation	The program is divided into two levels. The Level 1 binder deals with the scientific background students require to understand environmental issues while the Level 2 binder deals with the environmental issues per se. Level 1 and Level 2 are available separately.	**Publication Date**	1989
		ISBN	
		Est. Cost	$95 complete program
Distributor Address	Friends of Environmental Education Society of Alberta 9914–76 Avenue Edmonton, AB T6E 1K8	**Phone No.**	(403) 439–0243
		Fax No.	(403) 432–1203

Title/Name	Operation Lifeline	**Author**	World Wildlife Fund (Canada)
Annotation	Kit includes one poster, 10 Lifeline newsletters, one activity book and one teacher's guide. Available in English and French. The program stimulates and awakens interest in Canadian endangered species, their habitats, environment and fragile life support systems. W36752 Operation Lifeline W25763 Opération Survie	**Publisher/ Producer**	The Canada Life Assurance Co.
		Publication Date	1986
		ISBN	NA
		Est. Cost	$29.95
		Phone No.	(800) 263–4005
Distributor Address	SeeHearNow! Media 3771 Victoria Park Avenue Scarborough, ON M1W 2P9		

Title/Name	Outdoor Adventure Activities for School and Recreation Programs	**Author**	Darst, Paul W.; Armstrong, George P.
Annotation	An overview of considerations for outdoor program development and associated outdoor pursuit activities. It contains a good section on initiative games.	**Publisher/ Producer**	Burgess Pub. Co.
		Publication Date	1980
Distributor Address	35 Cobequid Drive Truro, NS B2N 5R1	**ISBN**	0808704893
		Est. Cost	$19.95
		Phone No.	(902) 893–1057
		Fax No.	(902) 893–1464

OTHER RESOURCES

Title/Name	Peer Support: Designing Interpersonal Skills: A Training Plan	**Author**	Davis, B.; Handcock, H.; Hills, M.
Annotation	Series of activities that encourage the development of positive identity and responsible independence as individuals exercise more control over their experiences. Uses a structured interpersonal skill training base to assist in the development of positive peer relations and encourages the use of peer group to support self-directed learning. Teachers must be made aware that the adaptation from the "Values Clarification" on p. 62 is contrary to Alberta Education's Controversial Issues Policy. Program Plan $20 Teacher's Resource $40	**Publisher/ Producer**	AADAC
		Publication Date	1987
		ISBN	1550060643
		Est. Cost	Free from AADAC
		Phone No.	(403) 427–7319
Distributor Address	AADAC Product and Distribution Branch 2nd Floor, 10909 Jasper Avenue Edmonton, AB T5J 3M9		

Title/Name	Prospectus for an Alberta Conservation Strategy	**Author**	Public Advisory Committees to the Environment Council of Alberta
Annotation	Public Advisory Committee report to the Environment Council of Alberta. Available free on request.	**Publisher/ Producer**	Environment Council of Alberta
Distributor Address	Environment Council of Alberta 8th Floor Weber Building 5555 Calgary Trail Southbound Edmonton, AB T6H 5P9	**Publication Date**	1986
		ISBN	
		Est. Cost	No charge direct
		Phone No.	(403) 427–5792

OTHER RESOURCES

Title/Name	School Ski Program Participation, Games and Skills, Fitness	**Author**	Landry, L.
Annotation	School ski program (Grades 4 to 6) *Startup package $88 Manual $25 Video $35 Startup package includes one manual, 36 certificates, 36 games and skill decals, one chart, one poster, one video (A Skiing Experience).	**Publisher/ Producer**	Cross-Country Canada
		Publication Date	1987
		ISBN	NA
		Est. Cost	shown
		Phone No.	(403) 453–8620
		Fax No.	(403) 453–8553
Distributor Address	11759 Groat Road Edmonton, AB T5M 3K6		

Title/Name	Sharing Nature with Children: The Classic Parents' and Teachers' Nature Awareness Guidebook	**Author**	Cornell, Joseph
		Publisher/ Producer	Crystal Clarity
Annotation	A collection of simple activities that stress environmental education. The activities are easily adopted for site, grade concept and timeframe.	**Publication Date**	1979
		ISBN	0916124142
Distributor Address	P.O. Box 698 Markdale, ON N0C 1H0	**Est. Cost**	$9.75
		Phone No.	(519) 986–4353
		Fax No.	(519) 986–4353

Title/Name	Ski Camping	**Author**	Watters, R.
Annotation	An excellent guide to ski camping including equipment, techniques and safety. There are particularly useful checklists and charts.	**Publisher/ Producer**	North Country Book Express
		Publication Date	1979
Distributor Address	Douglas & McIntyre 1615 Venables Street Vancouver, BC V5L 2H1	**ISBN**	088942567
		Est. Cost	
		Phone No.	(604) 254–7191
		Fax No.	(604) 254–9099

OTHER RESOURCES

Title/Name	State of the Ark: An Atlas of Conservation in Action	**Author**	Durrell, Lee
Annotation	Presents the Ark as the self-sustaining biosphere and its inhabitants as a great range of living species, both plant and animal. Deals with the state of natural ecosystems, species survival and the world's main regions. The rise of the conservation movement is discussed as are suggestions for corrective action.	**Publisher/ Producer**	Doubleday
		Publication Date	1986
		ISBN	0385236689
		Est. Cost	$22.95
		Phone No.	(416) 340–0777
		Fax No.	(416) 340–1069
Distributor Address	105 Bond Street Toronto, ON M5B 1Y3		

Title/Name	Sunship III	**Author**	Institute for Earth Education
Annotation	Available Spring 1991. Part of the Conceptual Encounters Program, it is a teacher's guide for running the program.	**Publisher/ Producer**	Institute for Earth Education
		Publication Date	Tentatively 1991
Distributor Address	P.O. Box 880, Station G Calgary, AB T3A 2G6	**ISBN**	TBA
		Est. Cost	TBA
		Phone No.	(403) 246–6611
		Fax No.	(403) 294–8336 Attn: Shirley Mitchell

Title/Name	Trapping and Conservation Program Manual	**Author**	Alberta Vocational Centre Lac La Biche, E. Robertson et al.
Annotation	Comprehensive manual providing information about trapping wild fur-bearing animals. Deals with capture methods, fur handling and management. A condensed version of this manual is expected to be available in 1991.	**Publisher/ Producer**	
		Publication Date	1987
		ISBN	NA
		Est. Cost	N/C
Distributor Address	Fur Management Council Fred Neumann Fur Management Co-ordinator Main Office, North Tower Petroleum Plaza 9945–108 Street Edmonton, AB T5K 2G6	**Phone No.**	(403) 427–6750

OTHER RESOURCES

Title/Name	Water Quality Questions: The Nature and Importance of Water Quality Variables in Alberta (Text, Teacher's Guide)	**Author**	Stoker, D.
		Publisher/ Producer	Alberta Environment
Annotation	Introduces students to the physical and ecological characteristics of a river, the various ways humans have an impact on rivers and the means available to monitor and manage river water quantity and quality.	**Publication Date**	1989
		ISBN	
		Est. Cost	Free with Workshop
		Phone No.	(403) 427–6310
Distributor Address	Environmental Education Branch Water Literacy Program 9820–106 Street Edmonton, AB T5K 2J6		

Title/Name	Wholistic Leadership Development Model (Used to design Blue Lake Centre Youth Leadership Seminar)	**Author**	Benson, Lyle
		Publisher/ Producer	Leadership Associates
Annotation	Wholistic leadership occurs when an individual, a group or an organization intentionally influences the behaviour, attitudes and values of another individual, group or organization. Useful to teachers concerned with environmental education.	**Publication Date**	Early 1991 (estimated)
		ISBN	TBA
		Est. Cost	$25
		Phone No.	(403) 865–4712
		Fax No.	(403) 865–1167
Distributor Address	Attn: Lyle Benson 97 Cheviot Drive Hinton, AB T7V 1R1		

Chapter

4

Unit Planning

BEST COPY AVAILABLE

PLANNING A SINGLE-YEAR PROGRAM

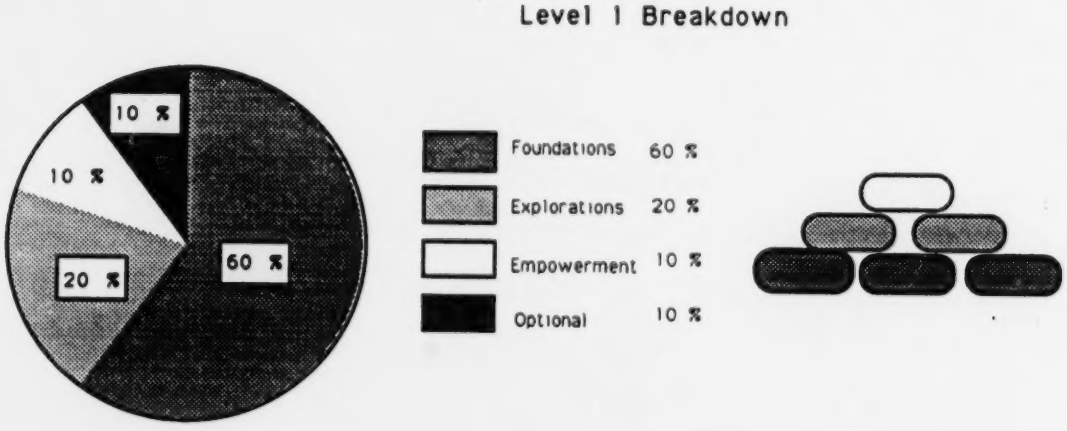
For the single-year course, the content will reflect all six elements of the course, with emphasis on the Foundation level according to student needs. This content will be presented in units that should:

- be thematic
- complement the season
- make effective use of community resources
- be incremental so they build on previously taught knowledge, skills and attitudes
- be consequential so the information is useful to the student in that unit
- be experiential so the student is involved in activities.

Specific guidance in the development of units is provided in sample units that are outlined later in this chapter.

PLANNING A MULTI-YEAR PROGRAM

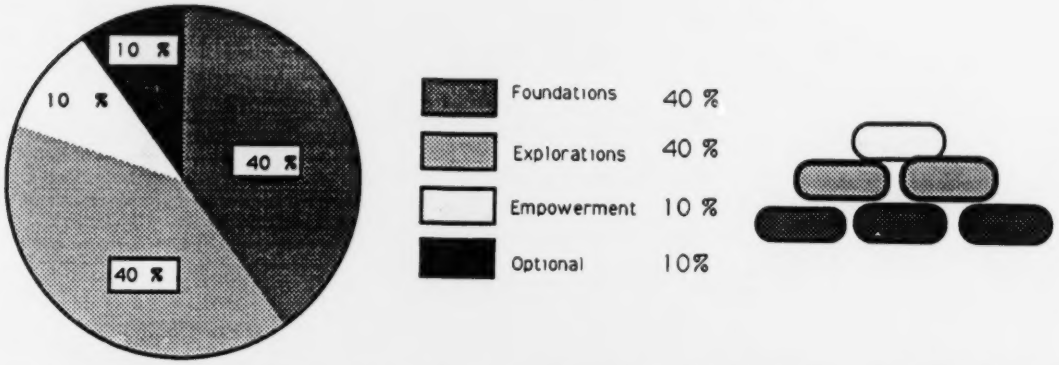
The flexibility of the EOE course of studies allows teachers to give emphasis to different levels of learning according to the needs and abilities of the students. Generally, a first-year program in environmental and outdoor education will give most attention to the Foundation level. Where the program is developed over two or three years, the second year might focus more on the Exploration level of the model leading to an emphasis on Empowerment in the final year.



In a single-year program, or in the first year of a multi-year program, the development of foundation knowledge, skills and attitudes should be emphasized. The environmental strand of Level 1 provides opportunities for students to study local environments and the general ecological principles that apply to those environments. The personal and group development strand focuses on the personal awareness, communication and group skills that will be needed later in the Exploration level activities. The third component of Level 1 is the development of outdoor skills, in preparation for Outdoor Expeditions. Although a first year environmental and outdoor education course will also include Exploration and Empowerment activities, these will likely receive less emphasis than in years two and three. In year one, the Environmental Investigations component will direct students' attention toward lifestyle issues they can address in their immediate environment (e.g., energy and material use at home and at school). Outdoor Expeditions will involve short trips commensurate with student and teacher abilities.

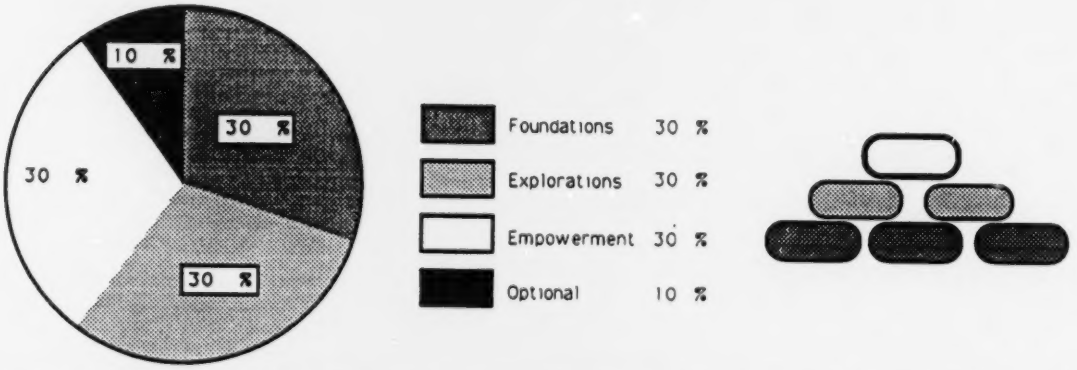
Commitment To Action activities will in most instances develop as a follow-up to action plans initiated in Investigations and Expeditions activities.

Level 2 Breakdown



In year two, the emphasis of the course will be on Exploration, but all program elements should be given attention. Elements from the Foundation level should be reviewed and further developed. In the environmental strand students may be provided opportunities to focus on specific issues at a local or regional level. They may review environmental principles that apply to a particular issue before moving into the investigation and problem-solving process. The Commitment To Action element will provide opportunities to follow up on knowledge gained in Environmental Investigations. Similarly, students will have the opportunity to review and develop further their Foundation knowledge, skills and attitudes, which will allow greater challenge in Outdoor Expeditions. The Commitment to Action in this strand examines ways that students can follow their outdoor activities and trips at school with trips of their own.

Level 3 Breakdown



In the third year, the course will focus on the Commitment to Action component. Generally this will be the most self-directed year of the program with students increasingly taking initiative and setting directions for their own learning. The focus of the units will be to provide students with the tools to take effective action in each of the three strands. Effective environmental action is action in context: politically, economically, socially and environmentally. Ecological processes studied in previous years should be reviewed and put into an expanded context. This is generally best accomplished by applying the ecological concepts to an environment not previously studied. In the environmental strand students will have the opportunity to follow a problem-solving model, develop action plans, then develop the skills to implement those actions plans. In the outdoor strand students may be heavily involved in planning and carrying out trips, and thus will develop the skills to do their own trips in the future.

In the personal and group development strand students will address personal growth issues that will complement their actions in the other two strands, and will plan strategies for enhancing their personal growth beyond the program.

UNIT AND LESSON PLANNING

The content charts at the end of the Teacher Resource Manual are provided as a tool for planning specific activities in units and lessons. The units and lessons that follow are examples of approaches that might be used in developing the EOE course. They are guidelines only and not meant to dictate how the course is to be taught.

Many of the Foundation knowledge, skills and attitudes are developed over a series of units as information is required. For example, in winter students develop the first aid skills to respond to cold-related injuries while at the same time developing preventive skills. Similarly, students develop map skills as they assume more and more of the planning and trip leadership responsibilities. This is suggested format and does not preclude delivering a unit focused on first aid or navigation skills.

The following format is provided as a guideline for lesson planning. A blank lesson planner based on this format follows this section.

- Unit
- Element
- Lesson Topic
- General and Specific Learner Expectations
- Materials And Resources Required
- Student Preparation
- Instruction Strategy
- Summary and Follow Through
- Evaluation

YEAR 1/UNIT 1: The Great Outdoors **Sept./Oct.**

The purpose of this first sample unit is to lay some groundwork for future units in all three strands of the model:

- For the personal and group development strand the primary intent is to get the students thinking about ways they can be more effective communicators.
- The outdoor strand lays the groundwork for a full day trip including a hot meal on the trail.
- The environmental strand asks the student to identify with one species in the environment they will visit. The students will then identify any impacts that human activities may have on that species. At the Commitment to Action stage, students will look at ways in which they can reduce their impact on the environment.

1. Course Introduction, Expectations and Administration
2. Journal Writing
3. Getting to Know One Another
4. Active Listening

5. Initiative Tasks
6. Outdoor Clothing
7. Food Planning
8. Fires or Stoves
9. Food Preparation
10. Personal Hygiene
11. Becoming an Expert
12. Interrelationships
13. Wildlife and Me
14. The Great Outdoors
15. Commitment To Action

YEAR 1/UNIT 2: WE'RE BEING AUDITED! Nov./Dec.

This sample unit starts off with some personal and group development activities followed by a study of how energy flows and materials cycle in the school. The investigative portion of this unit revolves around the interconnectedness of the school with other environments and the question "Can our school have less impact on other environments?" The Commitment to Action element looks at what action students can take to reduce their impact.

LESSONS

1. Introduction, Expectations and Administration
2. Body language lesson – initiative – Basic Killer game
3. Interpersonal Communication Process
4. Communication skills
5. Initiative tasks
6. Energy flow lesson and game
7. Cycling of materials game and lesson
8. Natural environment
   - identify energy flow and cycling of materials
   - identify interconnecting web of energy and materials
9. School environment
   - identify energy flow and cycling of materials through a school
   - self-contained or not
   - identify where energy and materials come from and go to

10-11. Student Activities
   - Water's Going On?!
   - Flip the Switch for Wildlife?
   - What Did Your Lunch Cost Wildlife

12. Investigation: Can our school reduce its effect on other environments?
13. Use Environmental Resource Centre materials to conduct school energy audit
14. How is energy in our school being wasted/conserved – energy audit results
15. How to save energy and materials at school
16. Design energy and material saving program
   - have students form committee to monitor school energy use over year

17. Commitment to action – reduction of energy and materials
   - journal work

YEAR 1/UNIT 3: ARE WE WARM YET? Jan. / Feb.

Sample Unit 3 focuses on outdoor skills. Through the unit, a plan is developed that prepares students for a ski trip to a site such as a youth hostel. The first portion of the unit develops winter travel skills and introduces some basic first aid and outdoor preparation skills. The personal and group

development element addresses values and personal interests, and considers ways these might come into play in the field trip activity. The environmental strand looks at how energy flow and cycling of materials is affected by winter and the adaptations animals and plants must make to winter. Following the expedition students look at the adaptations people make for winter, followed, in turn, by an energy and materials audit for students' homes. The Commitment to Action element looks at how students can reduce their use of energy and materials at home.

LESSONS

1. Unit Introduction, Expectations and Administration
2. Review of outdoor clothing principles – changes for winter
3. Repair and maintenance lesson, including waxing
4. Skiing lesson
5. Winter hazards
6. Skiing lesson
7. Food planning
   - winter requirements
   - menu planning
8. First aid simulation design – student design session using information supplied by teacher
9. First aid simulation
10. Ski lesson
11. Map work – schoolyard map exercise
12. Understanding the self-awareness model
    - values and their relationship to behaviour
    - values are related to beliefs and attitudes
13. Personal interests and activities to pursue on an outdoor trip
14. Researching trip – getting journal ready/trip photographer

15. Winter signs of animals
    - adaptations animals make to winter
    - how are energy flow and cycling of materials affected by winter?
16. Trip preparation – administration /group and personal gear
    - objectives/concerns and expectations

TRIP TO HOSTEL

- journal writing
- animal activities

17. Urban Adaptations
    - how do we adapt to winter?
18. Home energy and materials audit
19. Alternatives and consequences to current practices
20. Develop action plan and implement - evaluate?
    - check school audit to see if school is having results
21. Commitment to action
    - reduce use of energy and materials at home
    - plan future outdoor trips – family/club

YEAR 1/UNIT 4: CYCLING **Mar./Apr.**

Sample Unit 4 opens with lessons from the personal and group development element of the program framework, which examines values, communication and interaction within groups. The environmental strand considers cycles of air and gases and man's impact on them. The outdoor strand complements

the environmental strand by providing the opportunity to consider bicycling as an alternative to fossil fuel vehicles.

The bicycling portion of the unit examines safety, maintenance and repair, and culminates in a half-day trip. The unit ends with a Commitment to Action regarding plans for changes in home, school or community that will improve air quality.

LESSONS

1. Unit Introduction, Expectations and Administration
2. We All Have Different Values, Beliefs and Attitudes exercise
   - Openers Exercise
3. The Interpersonal Gap – communication theory
4. The Pinch Theory
5. Basic Needs of People in Groups exercise
6. Initiative task – TP Shuffle
   - Ship Wreck
   - Spider Web
7. Interrelationships
   - Cycle Factory
   - natural systems are interconnected
8. Air cycle
   - newspaper article: Our Fragile Future
   - general functioning
   - how the air cycle can spread effects of localized pollution

9-12. Investigation
   - are we having an impact on the air cycle?
   - research
   - alternatives and consequences
   - choices

13. Develop personal action plan
   - goal setting
   - tree planting in schoolyard?
14. Bicycling – rules of the road
15. Maintenance and repair
16. Hazards – en route organization
17. Emergency response
18. Bicycle first aid simulations
19. Half-day trip in town
20. Review of personal action plan for changes in home, school and community regarding air quality

YEAR 1/UNIT 5: SPRING BREAKUP **May/June**

Sample Unit 5 begins with a series of lessons from "Dryland Boating, A Resource Manual for Boating Safety Instruction," which prefaces the canoeing lessons that follow later in the unit. In preparation for a half-day trip to a site on the same body of water as the lessons, students are asked to find out about the history of the area, future plans for the site and the wildlife on the site. Students attend a week of canoe lessons with the last lesson extending to a half-day trip to a natural area. The unit then moves on to focus on the water cycle and the role of water in nature and in manmade environments. The Environmental Investigation examines the use of water in the community and means of reducing any negative impacts.

LESSONS

1. Unit Introduction, Expectations and Administration
2-5. Dryland Boating Package - Red Cross
3. Map reading for trip area - aerial photographs
4. Research trip area - history, wildlife, plans for development
5-10. Week of Canoe Lessons
11. Lake trip on last day of lessons
12-15. Water cycle
   - role of water cycle in nature
   - water cycle in Alberta
   - importance of water cycle in your life
   - cycle of water in community
   - changes that water can make
   - how water moves materials
16. Interviewing skills / Telephone skills
17. Letter writing
18. Visit to water treatment plant
19. Investigation of water cycle through community
   - getting information
   - guest speaker
   - effects of water use
   - alternatives and consequences
20. Student personal action
   - possible water trips in summer
   - journals

YEAR 2/UNIT 1: CAN'T SEE THE FOREST FOR THE TREES Sept./Oct.

Sample Unit 1 of Year 2 combines outdoor lesson in backpacking with a forestry theme. Many of the outdoor skills are a review of the previous year's studies.

Students are more involved in planning the trip though the teacher has made the necessary bookings in advance and has selected the general area. The environmental strand also incorporates review of basic ecological principles and follows through with an application of those principles to forestry.

Students examine current forestry practices and their consequences, as well as alternatives and their consequences. Students consider the subject in an economic, social and political context as well as an environmental context. Students should also consider their action plans in terms of personal lifestyle changes that they can make, as well as local, regional and global actions that might be taken.

LESSONS

1. Unit Introduction, Expectations and Administration
2. Review of clothing needs for upcoming overnight backpacking trip and anticipated hazards – i.e. black and grizzly bears
3. First aid scenario – students plan simulation for back-country accident
4. Simulation sessions – debrief
5. Emergency response plan for trip – including helicopter information and victim carries
6. Staying found – what to do when you are lost
7-8. Navigation: map work, including topographic maps and route cards
9. Personal and group hygiene review and minimum impact lesson
10. Students research trip
   - determine route with parameters set by teacher

- visit logged area

11-12. Food – nutrition review
- menu planning for trip

13. Trip preparation including equipment lists
14. Odds and ends for trip – administration (checklists/journals)
- half-day hike with full packs

15. Backpacking trip – overnight – debrief/journal work mini solos
16. Review of basic ecological principles
- energy flow
- cycling of materials
- interrelationships

17-19. Environmental Investigations
- forestry – current practices – guest speakers
- alternatives and their consequences – guest speaker
- student choice and action plans

20. Personal action e.g. planting trees – Forever Trees program
Community action e.g. planting trees
Provincial action e.g. writing letters

YEAR 2/UNIT 2: WE'RE ALL IN THIS TOGETHER Nov./Dec.

Sample Unit 2 combines an outdoor survival theme with an environmental theme focusing on animal survival strategies. The outdoor strand takes students to a survival camp. Animal survival strategies incorporate activities from Operation Lifeline into a series of lessons that look at endangered species.

LESSONS

1. Unit Introduction, Expectations and Administration
2. Survival exercise – Case Study
3. Navigation – more map work
4. Navigation – introduction of compass – schoolyard setting
5. Review of definition of a group, basic needs of people in groups and awareness of personal needs
6. Preparation for survival camp – equipment check
   - journal prep
   - solo prep
7. Survival camp with Alberta Fish and Wildlife
   - play animal game at camp
   - solo time
   - journal writing
   - have officers talk about how animals and plants adapt to seasonal changes
8. Environmental Investigations
   - animal survival strategies

9-12. Operation Lifeline materials – four lessons that focus on the questions:
- What is extinction?
- What is habitat?

13. Commitment to action – action to preserve species and habitats
14. Commitment to action – put survival lists together for family vehicles

YEAR 2/UNIT 3: "JACK RABBIT" JOHANNSEN ... HERE WE COME! Jan./Feb.

Cross-country skiing is the main focus of sample Unit 3. The unit prepares students for winter travel skills such as cross-country skiing and takes students' navigation skills one step further. Students also develop their group skills in the personal and group development strand. The Commitment to Action

identifies outdoor recreation options and student plans to get involved in some type of winter outdoor recreation activity.

LESSONS

1. Unit Introduction, Expectations and Administration
2. Review of clothing needs and winter hazards
3. Skill development in cross-country skiing
4. First aid simulation planning
5. First aid simulations
6. Trip research by students
   - possible cabins
   - what area has to offer
7. Skill development in cross-country skiing
8. Trip logistics
   - menu planning
   - equipment lists
   - administration
9. Navigation – additional compass and map work
10. Navigation – emergency response, evacuation routes, route cards
11. Review of en route organization, role of leaders/group selection of student leaders and groups
12. Skill development in cross-country skiing
13. Understanding people through strengths
14. Task and maintenance functions in groups
15. Conflict resolution
16. Cross-country ski trip to hostel; journals/solo time
17. Commitment to Action – Identifying winter outdoor recreation opportunities and how to access them

YEAR 2/UNIT 4: WIDE OPEN SPACES **Mar. / Apr.**

Sample Unit 4 continues the personal and group development process by studying stages of individual and group development. The environmental strand focuses on the prairie ecosystem, beginning with basic awareness and understanding. Following these Environmental Core activities, students will begin an investigation of prairie ecosystems including consideration of current land use practices, alternatives, and the real or potential consequences of each. After a field trip to a prairie grassland area, students will develop personal action plans and work on skills they will need to take effective action.

LESSONS

1. Unit Introduction, Expectations and Administration
2. Stages of individual development
3. Stages of group development
4. Personal style – bipolar exercise
5. Prairie ecosystem – air/water/soil cycles, energy flow, change

6-11. Environmental Investigations – prairie ecosystem research
   - Prairie Conservation Society – guest speaker
   - farmland and its effects – soil/water
   - alternatives and consequences

12. Effects of human activity on prairies locally/globally
13. Prep for day trip to natural prairie
14. Day trip

15-17. Action
   - personal action

- group action; effective lobbying

YEAR 2/UNIT 5: RIVER TRIPPING **May/June**

Students should play an active role in planning this sample unit. The unit provides opportunities for students to plan and carry out a river canoe trip. Lake canoeing skills are reviewed and supplemented with basic river canoeing skills for paddling on Class I rivers. Hazards associated with rivers are introduced using films. Students plan the canoe trip with the teacher's help (e.g. paddling groups, food and shelter requirements). As part of their trip preparation students will do a map exercise using the route to be travelled. A local fish and wildlife officer will be brought in to describe the wildlife and signs of wildlife students can expect to see along the route. The students have two environmental options they can choose from. One option examines animal habitat and human impact on those habitats. The second option has more of a science orientation as it examines water quality, in particular the effects of sewage on oxygen content of river water. The final stage involves action planning regarding habitat enhancement or water quality improvement.

LESSONS

1. Introduction of Unit, expectations and paperwork
2. Review of lake canoeing information – safety equipment/hypothermia
3. Lake canoeing review (on water)
5. River awareness film "Margin For Error"
6. River awareness "Uncalculated Risk" and self-rescue principles

7-9. Introduction to river canoeing (on water)

10. Planning the canoe trip
    - paddling and camping groups
    - food, shelter and clothing considerations
    - packaging considerations
11. Map exercise of route to be travelled
12. Familiarization with wildlife along canoe route (e.g. signs of beaver such as lodges, cuttings, bank slides, scent posts, etc.)

Environmental Option A

13. Animal Habitat – Project Wild Habitat Rummy
14. Animal Habitat – Project Wild Oh! Deer
15. Project Wild: What Did Your Lunch Cost Wildlife?

Environmental Option B

16. Clean water and its value
17. Introduction of Aquatic Invertebrate Monitoring (AIM) System
18. Test sampling from two sites
19. Canoe trip to McKinnon Flats from Fish Creek Park
20. Evaluation of information gathered on trip
21. Option A – Action Planning: Improving Habitat in the Community (P.W.)
    Option B – Water's Going On ?! (P.W.)

1-7

YEAR 3: STARTING POINTS FOR A PLAN

Unit 1 – Introduce format for year and the framework within which you and your students will plan the year, for example:

- learning expectations
- emphasis on different program elements
- cost considerations
- degree of challenge
- knowledge and skill levels of students
- teacher's right to step in at any time
- students' opportunity to make individual choices
- focus on skills
  - identify and develop new skills where needed
  - upgrade skills where necessary
- realistic goal setting
- safety
- respect for self, others and environment
- positive approach (always **for** something rather than against)

Initiation Process

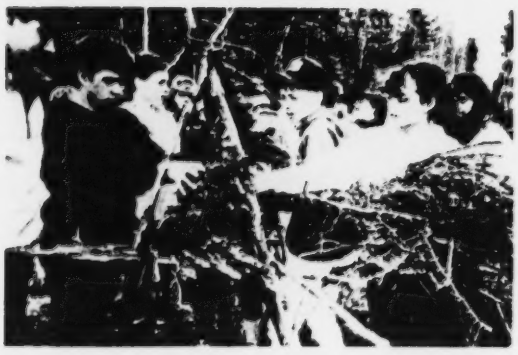
- Have students plan first unit – set up teams – teacher acts as facilitator
- Trips researched
- Investigations – student directed
- Timelines developed

Chapter

5

Lesson Planning

A Model Introductory Unit



OVERVIEW, UNIT 1.1: THE GREAT OUTDOORS

Unit Name: The Great Outdoors
Element Name: Personal And Group Development
Lesson Subject: Journal Writing
Lesson: 1

Specific Learner Expectations:

1. b. Students will recognize that individuals have personal lifestyles and beliefs that help define who they are.

Materials and Resources:

Journals, pens, blackboard, chalk

Instruction Strategy: Discussions and written work

1. Explain the function of the journal as a reflective tool for classes and trips. The journal can include written material, poetry, sketches, photographs, sayings, and have bits and pieces of things. The intent is to be as creative as possible. It is the teacher's option to read it or not. You may want to use it as an evaluative tool. Have the students set up the journal in a ringed binder so that they can add a variety of things to it and remove things they don't want you to read. (It is a good idea for teachers to take pictures of students on trips and in class for journals, bulletin boards and parent's nights.)

2. The teacher outlines the course plans for the year and points out where students have an opportunity for input. Have students write down what they expect to get out of the course.

3. Share these expectations with a friend.

4. In groups of four write down the five most important things the group expects to get out of the course. Have first group finished write their expectations on the board.

5. Review these expectations and have the class give you any additions they might have for the list. Discuss the expectations with the class, particularly regarding the realities you face as the course teacher.

Summary and Follow-Through:

Have the class copy the complete list of expectations, the course outline, costs, equipment required and the mark breakdown into their journals.

Evaluation:

Formative – Students make entries in journal on expectations for course.

Unit Name: The Great Outdoors
Element Name: Outdoor Core
Lesson Subject: Introduction and Planning
Lesson: 2

Specific Learner Expectations:

1. d. Students will recognize the role and importance of planning in outdoor activities.
   - Students will recognize the role of planning in enhancing safety and enjoyment of outdoor activities.
   - Students will recognize the needs and expectations of group members, and all others affected.
   - Students will recognize the scope of planning appropriate to different kinds of outdoor activities.

Materials and Resources Required:

Forms required for student and volunteer participation.

Student Preparation:

Students should be provided copies of required forms and understand their importance as a precursor to student participation.

Instruction Strategy:

Present information about unit and student involvement in planning it.
Have question and answer period followed by a brainstorming session in small groups.

Summary and Follow-Through:

Have students rank the outcome of their small group sessions and present their priorities to the class. Help the class establish priorities for the unit.

Evaluation:

Formative – Student participation.

Unit Name: The Great Outdoors
Element Name: Personal and Group Development
Lesson Subject: Getting to Know One Another
Lesson: 3

Specific Learner Expectations:

3. a. Students will demonstrate skills in communicating intents and ideas both verbally and non-verbally.
   b. Students will recognize the effects of their communications and actions on others.
      - Students will recognize and accept that the reactions of others may reflect a different perspective than one's own.
      - Students will demonstrate sensitivity to others.

Materials and Resources Required:

1 ball/student

Student Preparation:

Appropriate for students who are not familiar with one another's names. Some students will take this as an opportunity to demonstrate their ability to throw a ball very hard. Caution students that only softly thrown underhand tosses are appropriate.

Instruction Strategy:

Activity 1 Have the groups form a circle and have each student repeat his or her name to the groups. Explain that students will be passing the ball back and forth across the circle. Before the student throws the ball to someone he or she must call the person's name and establish eye contact. After the group has practised this activity rearrange the students' positions in the circle. Practise this activity again. Now add one or two more balls to the passing game. To further test the students' recall have them thank the person who just passed the ball to them while calling out the name of the person they are passing the ball to.

Activity 2 Introduce initiative tasks. Divide the class into groups of seven or eight. Explain to them that keeping the ball in the air requires the co-operative efforts of all the entire group. Have the group pass the ball around the circle so that every student in the circle gets a chance to catch and pass the ball. Do not allow any one student to get the ball more than once. Have the students repeat the sequence until they can follow the sequence consistently. Add balls to the circle one at a time. The initiative task is to see how many balls the group can incorporate into the passing game. Have the students identify what they must do as a group to meet the challenge.

Start your description of the Environmental and Outdoor Education program by explaining that the success of the course will be partly dependent on how well the group works together over the year. Working together involves communication and co-operation similar to that used in the initiative task.

Summary and Follow-Through:

Ask the groups if anyone would like to try to name all of the students in the group. Do people like to be called by their name? Why?

Evaluation:

Formative – Have students write all the names of the students in the class in their journals.

Unit Name: The Great Outdoors
Element Name: Personal And Group Development
Lesson Subject: Active Listening
Lesson: 4

Specific Learner Expectations:

3. a. Students will demonstrate skills in communicating intents and ideas both verbally and non-verbally.

Materials and Resources Required:

Rules for brainstorming, blackboard or overhead
Communication Skills I – booklet from the Recreation Parks and Wildlife Foundation

Student Preparation:

1. Teacher lists rules for brainstorming.
2. Teacher poses question: "What are some of the communication skills a ship's crew must have to function effectively?" Post this list on the blackboard. "Getting along" should include listening to one another.

Instruction Strategy:

1. Teacher introduces active listening. To the whole group, pose the question: "What does active listening mean?" Tell the group to write their response in their journals. Ask for responses. You should be looking for a definition of active listening, which is something like participating and applying oneself to hearing what another person is saying.

2. The following questions may help your students focus.
   - Are students attentive and following the conversation or are they daydreaming?
   - Are they using each other's names?
   - Does their body language show that they are attentive?
   - Can they think of other ways that they can show that they are attentive?
   - Do the students establish eye contact with one another? Is eye contact appropriate in all cultures?

3. Exercises

   a. Have students form groups of three. Designate A, B and C roles within each group.
   Person A is the observer and giver of feedback.
   Person B is the active listener.
   Person C is the talker.
   Person C is to talk to B on one of the topics listed below.

   King Arthur's Environmental Round Table
   Friendly Aliens have just landed. What would you ask them?

   Person C will take two or three minutes to explain. Use one topic from this list for your first exercise and the remainder in following exercises.

   At the end of that time, person A, the observer, will give feedback to person B, the active listener, on how they were using active listening skills.

   Once the entire class is finished, switch roles and repeat until all three people have had a chance to be the observer, the active listener and the talker. Follow this up with a discussion on the active listening skills that the students were using.

   With the students still in their groups, have them switch roles again and have the observers exhibit one form of poor active listening. After each session have the group discuss the effect of the poor listening on the speaker.

   Tell the class that as soon as one session is done, switch roles and repeat until all three people have had a chance to be the observer, the active listener and the talker.

Student Summary and Follow-Up:

Have students give examples of where they could use active listening.

Evaluation:

Formative – Students describe in their journal how they consciously used active listening principles at least once after the active listening exercise in class.

Unit Name: The Great Outdoors
Element Name: Personal and Group Development
Lesson Subject: Initiative Tasks
Lesson: 5

Specific Learner Expectations:

5. Students will demonstrate an understanding of group process and develop skills in group process.
   a. Students will demonstrate awareness and responsibility for their actions as a members of a group.

Materials and Resources Required: (Silver Bullets)

Electric Fence
- 1 rope (30')
- 2 posts (goal posts or 2 trees)
- Helmets
- 1 - 4' × 4' beam

Spider's Web
- Nylon cord
- 2 trees close together
- A small bell – Spider Dinner Bell

Student Preparation:

Stress the importance of spotting. Stress that students can't run at the fence and that they must be in contact with someone at all times. Have the students identify how groups work together effectively.

Instruction Strategy:

Use goal posts on the playing field to set up the electric fence. If helmets are available students should wear them. Use the same guidelines for the Spider's Web and try to keep the two initiative sites out of sight from one another so that students cannot see solutions to initiatives they haven't tried yet.

Summary and Follow-Through:

Questions for the group: How did your group work together? How could your group work together more effectively?

Evaluation:

Formative – Participation, Journal Entry

Unit Name: The Great Outdoors
Element Name: Outdoor Core
Lesson Subject: Outdoor Clothing
Lesson: 6

Specific Learner Expectations:

3. a. Students will select personal and group gear for outdoor activities.
   - Students will select personal equipment for outdoor expeditions with particular consideration to maintaining body temperature and protection from injury.

Materials and Resources Required:

Clothing you would bring on a trip
Survival exercise that you make up
Film on hypothermia
CBE Personal Equipment

Student Preparation:

Explain that spaceship crews must often wear specialized gear as they move around their ship or outside their ship to protect themselves from the cold or intense sunlight. When moving in some areas of our ship we must also bring along specialized equipment to make the environment more hospitable. Discuss parallels on earth.

Instruction Strategy:

1. Wear all the clothing you would take on an outing. Discuss how your body gains heat and how it loses heat. As you take off each item explain why you would take that item. Suggest other types of clothing and materials that would be good substitutes. This should help students when searching for clothing for their outdoor wardrobe. In your presentation include information on the layering principle.

2. Follow up the clothing exercise with a survival situation in which students (in small groups) must decide on 10 items they would like to have in that situation. Have them rank the list by priority and give their reasons to the class. Examples of survival situations include: lost while hunting, snowbound in your vehicle or a snowmobile breakdown in a remote area.

Summary and Follow-Through:

Emphasize the importance that proper gear selection plays in being prepared for and avoiding emergencies. Have students decide their personal gear inventory for the upcoming trip. If you have time you could talk about how other passengers on The Great Outdoors adapt to changing conditions (e.g. migration, hibernation, changing fur colour, winter fat, leaf loss, etc.)

Evaluation:

Formative – Students will participate in the survival exercise.

Unit Name: The Great Outdoors
Element Name: Outdoor Core
Lesson Subject: Food Planning
Lesson: 7

Specific Learner Expectations:

3. b. Students will plan to meet food needs during extended outdoor activities by demonstrating an understanding of:
   - Nutrition requirements.
   - Portability and preservation.
   - Food preparation techniques (e.g., cooking, fires and stoves).

Materials and Resources Required:

Outdoor Cookbooks
Favourite recipes
C.B.E. Nutrition Booklet
Menu Planner

Student Preparation:

Discuss the value of thorough food planning on trips (i.e. morale, energy).

Instruction Strategy:

Discuss what would constitute a good menu (including quantities). If possible, arrange for a guest presentation by a health nurse or home economist. Once the students have the basics, have them:

1. Divide into cooking groups and plan the menu for the upcoming trip including how to package the food.
2. Draw up a menu and assign responsibility for each meal. If your first trip is a day trip have them prepare a hot meal on the trip.
3. Decide which meal they will prepare for their schoolyard cookout. If your first trip is a day trip have the students cook a different meal for their schoolyard cookout.
4. Decide when they will prepare the food for the trip.
5. Discuss tips that will make outdoor cooking easier.

Summary and Follow-Through:

Emphasize the responsibility students have to the group to have their particular meals ready. You may want to have this lesson extend for another period.

The class could also discuss animal and plant nutrition and the adaptations that are made (e.g. generalists such as wolves and black bears, or specialists such as koala bears and humming birds).

Evaluation:

Formative – Students will submit a group menu plan.

Unit Name: The Great Outdoors
Element Name: Outdoor Core
Lesson Subject: Fires and Stoves
Lesson: 8

Specific Learner Expectations:

3. b. Students will plan to meet food needs during extended outdoor activities by demonstrating an understanding of:
   - Nutrition requirements.
   - Portability and preservation.
   - Food preparation techniques (e.g., cooking, fires and stoves).

Materials and Resources Required:

Stoves	Fuel
Pots	Soap
Grill	Fire extinguisher
Water bottles	First aid kit

If you are using fires, get permission to establish fire pits on school property or teach the students to build a fire without leaving a fire scar.

Instruction Strategy:

Use the booklet C.B.E. Fires And Stoves, pp. 5-29

Summary and Follow-Through:

Review the responsibilities that students have when using fires and stoves.

Evaluation:

Formative – Students will learn to use fires or stoves safely and with minimum impact.

Unit Name: The Great Outdoors
Element Name: Outdoor Core
Lesson Subject: Food Preparation
Lesson: 9

Specific Learner Expectations:

3. b. Students will plan to meet food needs during extended outdoor activities by demonstrating an understanding of:
   - Nutrition requirements.
   - Portability and preservation.
   - Food preparation techniques (e.g., cooking, fires and stoves).

Materials and Resources Required:

Stoves	Fuel
Pots	Soap
Grill	Fire extinguisher
Water bottles	First aid kit

Student Preparation:

After students have planned a menu for their trip have them bring in the ingredients for one meal and have a schoolyard cookout.

Instruction Strategy:

Have your students cook their meal after you do a demonstration outlining safety concerns, including how to fuel the stove. Have students move into their food groups and have them prepare a meal. Encourage them to set up a smorgasbord so they can taste a variety of meals.

If you are using fires, discuss the basic principles of fire building and environmental considerations when building fires.

Summary and Follow-Through:

Discuss the responsibilities one assumes when using stoves or fires.

Evaluation:

Formative – Students experience what it is like to cook outside. Students taste a variety of meals prepared in the outdoors.
Summative – Students participate in food preparation and cooking.

Unit Name: The Great Outdoors
Element Name: Outdoor Core
Lesson Subject: Personal Hygiene
Lesson: 10

Specific Learner Expectations:

3. c. Students will demonstrate knowledge of the techniques required for maintaining hygiene in outdoor settings in the following areas:
   - Water purification.
   - Personal cleanliness.
   - Group hygiene.

Materials and Resources Required:

Water purification tablets
Water bottles
C.B.E. Trip Planning, pp. 67-68

Student Preparation:

Exploring the outdoors involves taking care of the environment as well as ourselves.

Instruction Strategy:

1. Brainstorming session on sources of pollutants in the outdoors. What can you do to protect yourself from them?

2. Consider ways to manage personal waste in the outdoors:
   - Where and how to build latrines and how to use them.
   - What to do with toilet paper.
   - Seasonal considerations.
   - Where to locate sump holes and what goes into them.
3. Use of soap – types, where to wash.
4. Garbage – pack in as little as possible, burn only paper, not plastic or tin foil, burn cans to remove smell and pack them out (assuming that you are cooking over a fire), storage of garbage overnight.
5. Establish a policy concerning what students will do with garbage left by others.
6. Try drinking water purified with water purification tablets.
7. How can you pack your food to minimize waste?

Summary and Follow-Through:

What contributes to water pollution? What can't be treated with water purification tablets? Is clean water important to you?
How is waste management handled in nature (e.g. bird feces sacs, hare pellets, territory markers, gut bacteria)?

Unit Name: The Great Outdoors
Element Name: Environmental Core
Lesson Subject: Becoming an Expert
Lesson: 11

Specific Learner Expectations:

1. a. Students will demonstrate an awareness of local and global environments by developing:
   - Skill in observing and describing an environment based on first-hand observations.
   - Knowledge of some distinguishing features of local and global environments.
   - Knowledge of the diversity of life found in these environments.

Materials and Resources Required:

Library books – field guides to animals
Animal tracks
Hunter education books
RPWF poster series

Instruction Strategy:

1. Have students select from a list you provide an animal from the environment the class will be travelling to.
2. Working in pairs, have students make up a character profile on their animal using the resources provided.
3. Have the students make entries in their journal that will help them identify the species from signs in the field. Diagrams, pictures and notes can also be included.
4. Have students identify organisms that are interconnected with their organism to meet needs for shelter or food.

Summary and Follow-Through:

Discuss with students their first-hand observations of their environment.

Evaluation:

Formative – Students participate in research exercise about their animal species and work effectively in pairs.
Summative – Students make journal entries about their species. Journals will be one of the student products considered in evaluation of the unit.

Unit Name: The Great Outdoors
Element Name: Environmental Core
Lesson Subject: Interrelationships
Lesson: 12

Specific Learner Expectations:

2. a. Students will demonstrate skill in identifying interactions and ongoing changes in an environment.

Materials and Resources Required:

Make up animal game (e.g., Calgary Board of Education: Animal Game) using recycled plastic of different colours and shower curtain rings to make tags.
Use sport pinnies for different groups (e.g. herbivores and carnivores).

Student Preparation:

Safety goggles if possible and concern for each other while playing the game.

Instruction Strategy:

1. When possible, have students assume roles of the species they have chosen to study.
2. Have the students help you construct the game, e.g. cut out tags etc.
3. Explain game, rules and safety using Animal Game guidelines.

Possible modifications – rather than introducing hunter at the end of the game have the hunter involved in the game with specific quotas on kills and only certain animals that can be shot. Rather than having hunters able to kill on sight, require them to throw something such as old sock stuffed with other socks or rags.

Summary and Follow-Through:

Discuss game with students. Discuss how they felt as their particular animal. Did the game illustrate the idea of interconnectedness?

Evaluation:

Formative – Have students enter their animal's perspective on the animal game in their journals.

Unit Name: The Great Outdoors
Element Name: Environmental Investigations
Lesson Subject: Wildlife and Me
Lesson: 13

Specific Learner Expectations:

1. Students will demonstrate skill in environmental investigations.

Materials and Resources:

Local Fish and Wildlife officer/other knowledgeable member of community (possibly someone with different views).

Student Preparation:

Discuss questions students could ask. Reminder – Always be for something rather than against thing.

Instruction Strategy:

1. In a presentation of up to 10 minutes per student, have presenter discuss what's being done and the results. Ensure the action involves the students in a significant way.
2. Factors affecting area
3. Special problems unique to this area
4. Student Questions (i.e. What can students do to affect wildlife positively? Questions about specific interrelationships).

Summary and Follow-Through:

Have the students determine what they feel would be the best plan of action they could take to minimize their impact on their particular species.

Evaluation:

Formative – In journals students will write a 200-word article on best introducing their species, and how it is affected by man. Students should recommend the best plan of action they can take to reduce their impact on their chosen species, with some suggested alternatives.

Unit Name: The Great Outdoors
Element Name: Outdoor Core
Lesson Subject: Into the Void
Lesson: 14

Specific Leaner Expectations:

2. Students will develop competence in trip preparation and safety.

Student Preparation:

Have students identify where they can collect the gear they will need for the trip.

Materials and Resources Required:

Group and personal equipment lists
Examples of the equipment needed

Instruction Strategy:

1. Teachers should pick a trip commensurate with their abilities to lead as well as the students' abilities to follow.
2. The trip should involve some degree of preparation so that the students make use of the outdoor core work they have been doing.

Summary and Follow-Through:

Conduct a gear check before the trip.

Evaluation:

Evaluate whether students are prepared.

Unit Name: The Great Outdoors
Element Name: Commitment To Action
Lesson Subject: Let the Bells Ring Out
Lesson: 15

Specific Learner Expectations:

3. d. Students will identify and act on opportunities in their communities to take actions that may lead to positive impacts on local, regional, national and global environments.

Materials and Resources Required:

Rules for brainstorming
Addresses for MPs and MLAs
Addresses of local newspapers

Student Preparation:

Have students brainstorm ideas about how the concept of The Great Outdoors can be conveyed to others.

Instruction Strategy:

1. Review goal-setting strategies so that students can set realistic projects for themselves.
2. The projects should be relatively short.

Evaluation:

Summative – Evaluate the student's project.

Chapter

6

Lesson Planning

A Model Intermediate to Advanced Level Unit

OVERVIEW, UNIT 2.5: RIVER TRIPPING

Unit Name: River Tripping
Element Name: Outdoor Core
Lesson Subject: Introduction of Unit, Learning Opportunities and Responsibilities
Lesson: 1

Specific Learner Expectations:

1. d. Students will recognize the role and importance of planning in outdoor activities.
   - Students will recognize the role of planning in enhancing safety and enjoyment of outdoor activities.
   - Students will recognize the needs and expectations of group members, and all others affected.
   - Students will recognize the scope of planning appropriate to different kinds of outdoor activities.

Materials and Resources Required:

Forms required for student and volunteer participation
Pictures or slides from previous trips

Student Preparation:

Importance of forms as a precursor to student participation.

Instruction Strategy:

Present information about unit and student involvement in planning it.
Have question and answer period followed by a brainstorming session in small groups.

Summary and Follow-Through:

Have students rank the outcome of their small group sessions and present their priorities to the class. Help the class establish priorities for the unit.

Evaluation:

Formative – Student participation.

Unit Name: River Tripping
Element Name: Outdoor Core
Lesson Subject: Unit Planning
Lesson: 2

Specific Learner Expectations:

2. Students will develop competence in trip preparation and safety.
   a. Students will develop the knowledge, skills and attitudes necessary to prepare for outdoor expeditions in ways that will ensure the safety and well-being of those involved.
   b. Students will be aware of, list and take the steps necessary to anticipate emergencies and survival situations.

Materials and Resources Required:

Information on trips available in the area.
Possible resource person familiar with the group's skills and the potential trips in the area.

Student Preparation:

The students must understand the parameters that planning must follow and that the teacher has the power of veto.

Instruction Strategy:

Complete the unit planning with students and have students assign individual tasks for planning the trip.

Summary and Follow-Through:

Assign individual student tasks with completion schedules.

Evaluation:

Summative – Students will accomplish the tasks assigned.

Unit Name River: Tripping
Element Name: Outdoor Core
Lesson Subject: Review of Lake Canoeing Safety
Lesson: 3

Specific Learner Expectations:

2. a. Students will develop the knowledge, skills and attitudes necessary to prepare for outdoor expeditions in ways that will ensure the safety and well being of those involved.

Materials and Resources Required:

Red Cross Basic Boating Safety Package
Slide projector
Equipment handout
Hypothermia handout
Bucket and ice

Student Preparation:

Have students review information from previous instruction in lake canoeing and canoeing safety they may have had.

Instruction Strategy:

Review the hazards associated with cold water.
Have students time how long it takes them to tie up their shoelaces. Then have them soak their hands in a bucket of ice water for a minute. Time the same students as they tie their shoelaces up again. Discuss the effects of cold water and the progressive stages of hypothermia.

Present the students with the Equipment Handout and have them decide which items they will take with them on their trip.

Review the safety items which the Department of Transport (DOT) requires vessels under 5.5 meters to have on board. Also review the recommended list of safety items which small craft should have.

Summary and Follow-Through:

Students should identify items on the DOT lists which they have at home and if not, where they can get these items.

Evaluation:

Summative – Students will arrive to paddle with all the items required or recommended by the DOT.

Unit Name: River Tripping
Element Name: Outdoor Core
Lesson Subject: Lake Canoeing Skills Review
Lesson: 4, 5

Specific Learner Expectations:

5. a. Students will develop skill in a variety of outdoor activities and modes of travel.

Materials and Resources Required:

Services of canoe instructors and equipment (e.g. canoes, paddles, bailers, whistles, PFDs)
Transportation to site

Student Preparation:

Review basic parts of canoe and paddles.

Instruction Strategy:

Have instructors review the basic lake paddling skills with the students and their application of these skills to rivers.

Summary and Follow-Through:

Have students practise strokes such as the river "J," "J" stroke and the low brace, so that they can paddle their canoes in a straight line on the river and right the canoe if it tips.

Evaluation:

Summative – Evaluate student canoeing performance on final day of trip. All students should have a chance to stern their canoe on the last day.

Unit Name: River Tripping
Element Name: Outdoor Core
Lesson Subject: River Awareness (Session 1)
Lesson: 6

Specific Learner Expectations:

5. a. Students will develop the skills to recognize and assess physical hazards imposed by particular terrain hazards and conditions.

Materials and Resources Required:

River Awareness package by the Alberta Recreational Canoeing Association
Video/ Film: "Margin for Error" (22 min.)
VHS video playback unit/16 mm film projector and screen
Flip chart stand/paper/markers or blackboard/chalk
Handouts - equipment checklists from River Awareness package

Student Preparation:

Before showing the film ask the students to keep the following questions in mind:
What are some of the things students should consider taking along on an overnight trip?
What are some of the ways to decide if a section of river is within the ability of your group?
What problems could you expect to face on your trip?

Instruction Strategy:

Show the film and have the students respond to the questions in small groups.
Have each group present their answers to the group.
Handout Equipment Checklists.

Summary and Follow-Through:

Explain that the degree of difficulty of the river shown in the film is much more difficult than the river they will be paddling. However, the planning principles will be same. The degree of difficulty of the river in the film necessitates helmets and extra flotation. These items are not necessary for the Class I rivers the class will be paddling.

Evaluation:

Formative – Students will participate in group discussions that address the questions above.

Unit Name: River Tripping
Element Name: Outdoor Core
Lesson Subject: River Awareness (Session 2)
Lesson: 7

Specific Learner Expectations:

5. a. Students will develop the skills to assess hazards and the danger they represent to the well-being of individuals and the group. Students will develop an understanding of the precautions necessary to avoid or respond to these hazards.

Materials and Resources Required:

Film/video - "Uncalculated Risk" (15 min.)
16 mm film projector/VHS playback unit
Screen
Blackboard and chalk, or flip chart/paper/felt marking pens
River Hazards handout

Student Preparation:

Introduce "Uncalculated Risk" by telling the group the film shows a number of river hazards that might be encountered by paddlers. As people watch the film, have them identify and record each hazard they see. Mention that some of the river features are not found on Class I rivers, but that they must record all hazards.

Instruction Strategy:

Have the students identify:

a. River hazards (features found on rivers)
b. Equipment hazards (problems that arise as a result of equipment failure or loss)
c. Tactical hazards (errors in paddler judgment that can lead to injury or death).

Remind students that some of the river features in the film are found on Class II rivers or greater. Finish the exercise by handing out the information on river hazards.

Summary and Follow-Through:

Have students read the River Hazards handout and include this information in their journals.

Evaluation:

Summative – Students will behave in a safe manner on the river trip (i.e. wearing their life jackets correctly, staying behind the lead boat, not splashing on cold rainy days).

Unit Name: River Tripping
Element Name: Outdoor Core
Lesson Subject: Introduction to River Canoeing
Lesson: 8, 9, 10

Specific Learner Expectations:

5. a. Students will develop skill in a variety of outdoor activities and modes of travel.

Materials and Resources Required:

Local canoeing club for equipment and river canoeing expertise
Transportation to site
Change of clothing for each student
Rain gear when necessary
Wet suits if available

Student Preparation:

Previous two lessons.

Instruction Strategy:

Find an appropriate river teaching site (e.g. large eddies, no downstream hazards). Have a vehicle on site or have access to a nearby building to warm students up if necessary. A thermos of warm, sweet fluids or a large fire may be other options worth considering in the event of a capsize.

Summary and Follow-Through:

Review the possibilities of the canoe capsizing and the rescue procedures that must follow. Emphasize the importance of waterproofing equipment, particularly clothing and sleeping bags.

Evaluation:

Summative – Students will attend the river paddling sessions with the required gear, including spare clothing.

Unit Name: River Tripping
Element Name: Outdoor Core
Lesson Subject: Map Skills
Lesson: 11

Specific Learner Expectations:

4. b. Students will develop the skills necessary to interpret and apply route information while en route, including map reading skills.

Materials and Resources Required:

Topographic maps of trip
Slides of trip
Slide projector/screen

Student Preparation:

Explain to students that they will be studying maps of the area they will be canoeing in. Have them look for landmarks that will help them estimate distances while they are on the river.

Instruction Strategy:

Show students a slide show using slides from a previous trip (which focuses on the topography of the route). Have students work in small groups with each group having a set of maps to follow during the slide show. Have the groups identify the access and egress points and landmarks (e.g., bridges, power lines, islands, steep banks, incoming rivers). Explain to student how distances can be measured between points on a river.

Summary and Follow-Through:

Explain to students that you will not be answering any questions about distances while on the river. Students will be expected to recognize landmarks and estimate distances themselves.

Evaluation:

Formative – Have each student identify at least two landmarks on the map and enter these landmarks in their journals along with the estimated distance to each landmark from the access point.

Unit Name: River Tripping
Element Name: Environmental Core
Lesson Subject: Wildlife Awareness
Lesson: 12

Specific Learner Expectations:

1. a. Students will demonstrate an awareness of local and global environments by developing:
   - Skill in observing and describing an environment based on first-hand observations
   - Knowledge of some distinguishing features of local and global environments
   - Knowledge of the diversity of life found in these environments.

Materials and Resources Required:

Invite your local Fish and Wildlife officer or amateur naturalist to make a presentation to the class on the birds and animals (and their signs) they are likely to see during their trip. Encourage speakers to use slides and other props to make it more interesting for the students (e.g. beaver cuttings).

Bird and animal guides, Hinterland Who's Who series.

Student Preparation:

Ask students to identify animals and evidence of their presence in an area that they are familiar with. Have students identify one animal that they will become an expert on.

Instruction Strategy:

Introduce the guest speaker.

Summary and Follow-Through:

Have the students prepare a list of 10 characteristics that will help them identify their animal or signs of their animal.

Evaluation:

Formative – Have students enter information on their particular animal in their journals.

Unit Name: River Tripping
Element Name: Environmental Investigations
Lesson Subject: Clean Water and Its Value
Lesson: 13

Specific Learner Expectations:

1. a. Students will demonstrate initiative and insight in identifying questions for investigation.

Materials and Resources Required:

a. One large clear container that will hold three litres of water, three graduated cylinders and overhead of the water cycle (posters of the ocean, glaciers or ice cap if possible).

b. A clear flat-bottomed pan or box, four or five sponges, a watering can, four clear jars, red or blue food colouring, a meat baster and two quarts of sand.

Living Lightly on the Planet, pp. 56-64.

Student Preparation:

Students will study the distribution of the earth's water. Have any students ever experienced a water shortage or had to treat their drinking water? What was it like?

Instruction Strategy:

Follow Investigations 1 and 2 in Living Lightly on the Planet.

Summary and Follow-Through:

Have students identify where the water they use comes from and where it goes.

Evaluation:

Summative – Students will demonstrate an understanding of the fresh water available on the planet and the effects of humans on it.

Unit Name: River Tripping
Element Name: Environmental Investigations
Lesson Subject: Aquatic Invertebrate Monitoring
Lesson: 14

Specific Learner Expectations:

1. c. Students will demonstrate skill in researching questions, problems and issues.

Materials and Resources Required:

AIM kit - FEESA
AIM poster
A sample of aquatic invertebrates from local stream or river channel (two people can collect a kick sample with a pair of old pantyhose stretched around a coat hanger). Collect two samples from above and below a water treatment plant. Save the downstream sample for the following class.

Collect the sample at least a half-kilometre below the outlet. A sewage treatment plant will likely give excellent results as the assimilation of the organic portion of the sewage by the micro-organisms in the river will cause the oxygen levels of the water to drop. Hip waders and life jackets are useful when collecting samples.
Petri dishes
Magnifying glasses

Student Preparation:

1. What do aquatic animals need to survive?
2. Why would the animals that live in the river be a good indicator of the quality of the water?

Instruction Strategy:

1. Show diagrams of the five invertebrates (see overhead).
2. Explain that the bugs have varying needs when it comes to oxygen.
3. Divide the class into five groups and have each group name one invertebrate. Explain that each bug should have a name that reflects its appearance.
4. Each group is to come up with a name and the reasons for that name as well as some theories about how it manages to stay in one place on the river bottom (Theory of Attachment). Students should have live specimens to examine.

Summary and Follow-Through:

Each group presents their bug name and Theory of Attachment to the class.

Evaluation:

Formative – Students will demonstrate an understanding of how invertebrate monitoring can be used as an indicator of pollution levels in rivers.

Unit Name: River Tripping
Element Name: Environmental Investigations
Lesson Subject: Aquatic Invertebrate Monitoring – Interpreting the Results
Lesson: 15

Specific Learner Expectations:

1. c. Students will demonstrate skill in researching questions, problems and issues.
   - Students will examine background information.
   - Students will identify consequences.

Materials and Resources Required:

See Lesson 13.

Student Preparation:

Have the students review the bugs and their names. Have them identify each of the five bugs in a sample. Explain that there will likely be many other kinds of bugs in the samples but that you are only looking for the five invertebrates identified.

Instruction Strategy:

1. Review the relative oxygen requirements of the five invertebrates.
2. Explain that you have two samples of invertebrates from the river bottom. Explain that one sample was taken from below the local water treatment plant, and that the other was taken from above the plant.
3. Explain the effect of sewage on the oxygen levels in the water. Background Information Pages 2-6, AIM by FEESA.
4. The riddle the class must solve is where did the samples A and B come from.
5. Divide the class into pairs, with each pair counting bugs in their portion of a sample. Have students counting sample A combine their results and have students counting sample B combine their results.
6. Examine results.

Student Summary and Follow-Through:

Have students discuss the effects of this reduced oxygen level on organisms other than invertebrates (i.e. effects on fishing, birds, etc.). What additional factors in the effluent from the sewage treatment plant could be affecting the invertebrates?

Evaluation:

Formative – Participation

Unit Name: River Tripping
Element Name: Environmental Investigations
Lesson Subject: Aquatic Invertebrate Monitoring – Verifying the Results
Lesson: 16

Specific Learner Expectations:

1. c. Students will demonstrate skill in researching questions, problems and issues.

Materials and Resources Required:

Plan a canoe trip that will include a section of a river below the local water treatment plant. Take samples from a number of sites below the plant to see if the oxygen levels return to the levels found above the plant. The more samples you have time to collect the more conclusive your results will be.

Student Preparation:

1. Explain the pantyhose, dual sampling kick method of aquatic invertebrate monitoring.
2. Have students examine one sample to see if they can do a quick qualitative analysis of where the oxygen levels drop off and rise again. Option: For a greater challenge have students do a quantitative analysis.

Instruction Strategy:

1. Have students follow the same sampling and counting procedures as in lessons 13 and 14 for each site sampled.
2. Plot the results on a graph. The greater the number of sites sampled the more accurate the graph will be.

Student Summary and Follow-Through:

Have students write a brief description of where they would go fishing below the treatment plant and why. Would they eat the fish? Why not?

Evaluation:

Summative – Have students identify in their journals how they can reduce their water consumption.

Unit Name: River Tripping
Element Name: Outdoor Expeditions
Lesson Subject: Canoe Trip Planning
Lesson: 17

Specific Learner Expectations:

3. Students will demonstrate the knowledge and skills required for safe, comfortable outdoor living.
   a. Students will select personal and group gear for outdoor activities:
      - Students will select personal equipment for outdoor expeditions with particular consideration to maintaining body temperature and protection from injury.
      - Students will select group equipment for outdoor expeditions to meet requirements for food, shelter, travel, emergencies.
      - Students will demonstrate the proper care and maintenance of outdoor equipment.
   b. Students will make preparations to meet food needs during extended outdoor activities by demonstrating an understanding of:
      - Nutrition requirements.
      - Portability and preservation.
      - Food preparation techniques (e.g., cooking, fires and stoves).

Materials and Resources Required:

Personal and group equipment for trip
Completed parental permission forms
Equipment checklists

Student Preparation:

Discuss importance of proper planning.

Instruction Strategy:

Have the students finalize their menu and equipment needs.
Have students check their tents and stoves.

Summary and Follow-Through:

Review equipment checklists.

Evaluation:

Summative – Students will be evaluated on how well prepared they are for the trip. Those students who cannot afford proper gear will be expected to find substitutes or let the teacher know of the difficulties they are having.

Unit Name: River Tripping
Element Name: Outdoor Expeditions
Lesson Subject: Canoe Tripping
Lesson: 18

Specific Learner Expectations:

Students will demonstrate skill, judgment, confidence and sensitivity through participation in a wide range of environmentally responsible activities in outdoor settings.

Materials and Resources Required:

Equipment for canoe trip
Volunteer leaders and drivers
Transportation to and from the river

Student Preparation:

Previous lesson

Instruction Strategy:

Never allow a situation to arise that is beyond your ability to ensure the safety of the students.

Summary and Follow-Through:

Set aside time each day to debrief the day and take time to debrief the entire trip. Working in smaller groups is more effective.

Evaluation:

Formative – Have students write in their journals what the trip meant to them (e.g. what were the high points, low points, did they see their particular animal or signs of it, did their tent and cooking group get along, what they would do differently next time).

ENVIRONMENTAL OPTION A

Unit Name: River Tripping
Element Name: Commitment To Action
Lesson Subject: Improving Habitat in the Community
Lesson: 19/20 (a)

Specific Learner Expectations:

3. Students will develop and act on plans that demonstrate responsibility for local and global environments.

Materials and Resources Required:

Resource Project Wild - p. 131; Local Fish and Wildlife officer.

Student Preparation:

Have students review wildlife survival requirements.

Instructional Strategy:

Follow procedures outlined on pp. 131-132 of Project Wild (Secondary Edition).

Student Summary and Follow-Through:

Have students report on the actions they took to improve habitat in their schoolyard or community.

Evaluation:

Summative – Evaluate student habitat improvement projects.

ENVIRONMENTAL OPTION B

Unit Name: River Tripping
Element Name: Commitment To Action
Lesson Subject: Monitoring and Reducing Water Consumption
Lesson: 19/20 (b)

Specific Learner Expectations:

3. Students will develop and act on plans that demonstrate responsibility for local and global environments.

Materials and Resources:

Information on water conservation in the home.

Student Preparation:

Have students examine ways they can conserve water at home and at school.

Instructional Strategy:

Have students select one action that they can take to conserve water and what the most effective means would be to meet that goal.

Student Summary and Follow-Through:

How can students pass this information on to other people in their community?

Evaluation:

Summative – Student activity reports on their efforts to reduce water consumption will be evaluated.

Chapter

7

Safety

BEST COPY AVAILABLE

PLANNING AND CONDUCTING SAFE OUTDOOR TRIPS

Planning for safe outdoor trips can be viewed as a four-stage process: risk anticipation and preparation, ongoing risk assessment and risk reduction, emergency response and post trip follow-up. Educational expeditions in the outdoors are recommended and encouraged as an integral part of the Environmental and Outdoor Education course. However, teachers and students should be engaging in activities commensurate with their level of training and ability. Safety is not merely following correctly procedures and policies; it involves exercising situation-specific judgment throughout the program. As judgment is the product of experience, students should have the opportunity to make mistakes in a guided-discovery teaching situation. However, the teacher or leader should never permit a situation to arise that is beyond his or her ability to ensure the well-being of the student.

RISK ANTICIPATION AND PREPARATION

The preparation stage is the most important stage of any trip. Many of the mistakes commonly made while on the trail can be avoided, or anticipated and moderated at this stage. For example, if a group is familiar with hypothermia they are more likely to be dressed properly, reducing the risk of getting cold and wet. If they are familiar with the signs of hypothermia before an incident, they are more likely to recognize that their core temperature is dripping before it becomes a critical problem. And finally, if hypothermia does become a critical problem they will have the knowledge, skills and equipment to treat it properly. The preparation stage includes:

1. Pre-trip communication and administration.
2. Pre-trip logistics.
3. Student preparation.

1. Pre-trip Communication and Administration
   Wherever possible samples of forms, introductory letters, contact lists, sources of information on courses, equipment and expertise, and reference materials will be included.

   a. Trip administration includes:
      - parental permission forms.
      - health information forms.
      - school/system authorization forms.
      - accident report forms.
      - route cards and evacuation routes.

   b. Activities should conform to applicable laws and regulations regarding:
      - trespassing.
      - national park permits.
      - restrictions on camping such as open fires, fishing regulations, size of group, etc.

   c. Parents, school administration, park authorities or others who would be informed in the event of an accident or other circumstance should have:
      - itineraries (route cards).
      - participant lists.
      - communication channels (e.g. contact lists for current rescue services in area).
      - emergency response plans.

   d. Board and school policies and practices should be understood by principals, teachers, parents, volunteers and students. These policies and practices should include:
      - volunteer policies and expectations.
      - insurance criteria for coverage.
      - budget requirements (how to charge for a trip or year program).

- supervision requirements.
- transportation requirements.
- educational criteria.
- authorization requirements.
- procedures in the event of a calamity.
- procedures for informing the media and others.

e. Students and parents should be informed about and understand potential hazards and risks either at pre-trip meetings or in a handout that goes home to parents.

f. Leaders should be familiar with the area in which the trip is being conducted.

2. Pre-trip Logistics
Some pre-trip logistics should be included in pre-trip communications that go out to parents and administrators (e.g. transportation arrangements).

a. Transportation considerations include:
   - luggage space.
   - meeting place and time.
   - mode of travel.
   - emergency vehicle.
   - driver co-ordination/licensing.
   - keys.

b. Equipment considerations include:
   - equipment testing and setup (e.g. stoves, tents).
   - group equipment needs.
   - student equipment needs.
   - rentals vs. purchases.

c. Facility considerations include:
   - reservations.
   - deposits.
   - cancellation insurance.

d. Departure date considerations include:
   - area policies (e.g. some parks check parking lots before shifts end).
   - weather report and forecast.
   - back country registration and permits.
   - current area information (e.g. bear scares, potential slide areas).

e. Pre-trip training in a particular skill area (e.g. canoeing, skiing, backpacking, etc.).

3. Student Preparation
Teachers should ensure that students are prepared in the following areas:

a. Mental and physical fitness considerations include such questions as: are participants capable of undertaking the activity as initially planned, has the pre-trip training been extensive enough, is the trip reasonable (e.g. weight of packs, distance, elevation gain).

b. Medical considerations include past and present medical problems (e.g. diabetes, hypersensitivity, heart problems, breathing problems, etc.) and how student medication is to be administrated.

c. Experience considerations include:
   - student background/experience.
   - background knowledge.
   - Experience of other leaders and volunteers.

d. Equipment considerations should include checking packs before the trip to determine if the students have the proper gear (e.g. proper clothing and footwear).

e. Students should be given training in what procedures they should follow if they are lost or separated from the group.

f. Students will be expected to demonstrate the basic knowledge, skills and attitudes necessary for safe, comfortable, outdoor experiences of all kinds, in all seasons. It is important that the preparation and training is commensurate with the degree of difficulty of the trip. The competence required for safe, comfortable experiences in the outdoors are listed in the specific learner expectations in the outdoor strand.

ONGOING RISK ASSESSMENT AND RISK REDUCTION

Risk reduction is a stage that is dependent on judgment and experience. Judgment is the product of experience. Experience includes recognizing factors such as deteriorating weather, a tiring group or increasingly more difficult rapids, and including those parameters in the judgment process. It is important that the students are aware of the decisions a teacher makes so that they will gain experience in this critical area and eventually participate in the decision-making process. Many of the hazard recognition skills can be taught in the classroom in the preparation stage. For example, a student may never have seen a grizzly bear in the wild but after having seen a picture or video in the classroom he or she would be well aware of the risk involved and the means of reducing it.

A significant aspect of ongoing risk management and risk reduction is group management. The skills are:

1. Pacing (e.g. speed of travel, rest stops, distance travelled, awareness of fitness level of all participants).

2. Group control (e.g. lead and sweep, position of leader, regrouping procedures, signal systems, buddy systems).

3. Objective hazard recognition in the field (e.g. weather, terrain, flora and fauna).

4. Task allocation (e.g. shelter, cooking, water, waste disposal).

5. Group and organizational rules and norms.

6. Subjective hazard recognition in the field (e.g. level of group energy, level of co-operation).

Group size is an important consideration (e.g. potential environmental impact, level of supervision required, effective communication).

EMERGENCY RESPONSE

Emergency response is the final stage of the Critical Situation Model. If the group has been well prepared and appropriate judgment has been exercised to this point, the teacher will have maximized the number of options they have to choose from to respond to an emergency situation. Proper recognition leads to a relatively short list of considerations in an emergency response situation:

1. Emergency Response Action Plan

    a. Accident site approach considerations
    b. Administering first aid
    c. Signaling
    d. Evacuation plan
    e. External assistance procedure

2. Group management in an emergency situation

    a. Student response to accident
    b. Student involvement

Post Trip Follow-up

1. Integrating the experience

    a. Trip journals
    b. Debriefing
        - Formal
        - Informal
    c. Recommendations for future trips

2. Celebrating the trip (newsletters, bulletin boards, slide shows)

3. Post-trip administration

    a. Trip log update
    b. Final evaluation

Chapter

8

Evaluation

EVALUATION TECHNIQUES

Student evaluation should take the following into consideration:

a. general and specific learner expectations.
b. increasing independence and choice by students.
c. students being aware of course objectives and evaluation methods to be used.
d. developing a positive attitude toward a commitment to action in personal growth, environmental action and outdoor pursuits.
e. evaluation for success and for motivation to improve. Appropriate course requirements should be established and opportunities should be given for students, singly or in groups, to achieve a standard or course requirement. This may require that students repeat tests or assignments to meet course requirements.
f. that the evaluation component include an assessment of the student's processing abilities in addition to assessing the student's knowledge, skills and attitudes.
g. evaluation weighting should reflect the emphasis in instruction time.

There are two types of evaluation that may be used in this program: formative and and summative. Formative evaluation is the ongoing determination of the student attitudes, skills or level of understanding. These evaluations serve as an indicator to the teacher and the student where additional effort may be needed in the program. Summative evaluation is the determination of a mark based on a student's achievement of learner expectations. Any activity that is graded may become a component of the summative evaluation.

The Environmental and Outdoor Education course is designed to be holistic in nature with an aim of empowering the student. The course allows for a variety of learning styles to be accommodated. Therefore a wide variety of student evaluation methods must be used. These might include:

- Activity Reports
- Interviews
- Self-Evaluation
- Observation
- Case Studies
- Expedition Evaluation

ACTIVITY REPORTS AND PROJECTS

Activity reports or projects are assignments given to individual students or to a small group of students. Usually they involve research on a specific topic in the program. Activity reports or projects allow students some freedom to express individuality and to demonstrate particular strengths. A variety of resources can be incorporated into a project, for example:

- written report
- models
- audio-visual material
- photographs
- drama
- drawings
- graphs

Sample Report Format and Marking Guide

Evaluation of reports will be based on guidelines provided by the teacher for preparing and presentation of the report. Following is a brief sample report format and a corresponding marking guide.

Topic Choice

Pick an environmental issue you are concerned about and the action which you plan to take.

How to go about it

1. Use the environmental investigation method to address the issue.
2. Consider at least three alternatives to the current practice.
3. Explain your choice.
4. What is your plan of action?

The Task

You will be given class time in the library to research the report. If you are not planning to submit a written report please talk to me.

Due Date _____

Marking

40%	Application of the environmental investigation process
20%	Consideration of alternatives – well researched
10%	Reasoning behind choice
10%	Action Plan
10%	Organization and presentation

INTERVIEW

Understanding developed in this course may be difficult for some students to express in writing. Also, many of the problem-solving activities require that teachers observe and evaluate the process rather than the outcome. For these reasons, an interview format is one of the evaluation formats to be considered for use with this course. This approach can be used to particular advantage by the EOE teacher, as he or she often has a greater degree of rapport with students as a result of the many commonly shared experiences in the outdoors.

The teacher should approach the interview with a series of questions that can be used as a guideline. The teacher should use additional probing questions when appropriate. An interview may be focused on a problem-solving assignment such as an environmental investigation. The teacher may pose the following questions regarding an environmental investigation:

1. Identification and understanding of the problem:
   - Can you describe the problem in this investigation?
2. Gathering additional information:
   - How did you go about getting more information on this problem?
3. Alternatives:
   - What would you do at this point in the investigation?
4. Choosing:
   - What criteria would you use to make a decision?
5. Action:
   - How would you evaluate the outcome of your action?

   It is important to be patient and wait for answers. If the student can't remember something, ask the student to respond to a hypothetical situation.

SELF-EVALUATION

Self-evaluation is an important evaluation technique, especially as this program is designed to empower students to act and learn from actions beyond the school. For lifelong learning the habit of self-evaluation is required. A sample self-evaluation questionnaire follows:

Please rate your performance on a scale of 1 to 5.

1 – not satisfied
2 – could have done better
3 – good
4 – very good
5 – excellent

Knowledge and Skills

1. Care of equipment	5	4	3	2	1
2. Fire-building skills	5	4	3	2	1
3. Recognition of hazards	5	4	3	2	1
4. Shelter-building skills	5	4	3	2	1
5. Ability to listen without interrupting	5	4	3	2	1
6. Respect for other people's ideas	5	4	3	2	1
7. Respect for the environment	5	4	3	2	1
8. Appropriate use of clothing (i.e. thermoregulation)	5	4	3	2	1
9. Map and terrain interpretation skills	5	4	3	2	1
10. Willingness to help others	5	4	3	2	1

In follow-up to self-evaluations, teachers may want to have students compare their evaluations to those of the teacher. If the teacher and the student each fill out the evaluation form, follow-up discussion may focus on areas of greatest discrepancy between teacher and student evaluations. The self-evaluation should be followed with recommendations for future action.

OBSERVATION

Observation is an important evaluation tool in an experientially oriented program such as Environmental and Outdoor Education. When evaluating, the following guidelines and suggestions may be helpful:

1. Develop a strategy that allows you to focus on a small group of students (e.g. cooking a meal, setting up a tent, performing an initiative task).
2. Have specific criteria in mind (e.g. listening to others without interrupting, willingness to help, shows respect for ideas of others).
3. Make notes or keep informal records of what has happened (e.g. yes/no checklist, a tally, frequency of action, numerical rating scale, anecdotal record, p. 62).
4. Develop a checklist to help you concentrate on the things you want to observe.
5. In follow-up discussions with students regarding their evaluation, emphasize that you are evaluating student performance and not the student. Having notations of concrete examples of student performance can be especially helpful.

CASE STUDIES

Case studies can be used to bring a variety of situations to the classroom setting. Teachers should be prepared for more than one answer and expect students to justify those answers orally or in writing. It is important that the case study has enough information so that the students have a clear picture of the

problem. It is also important that students state the assumptions they are making when they respond to the study.

EXPEDITION EVALUATION

Student evaluation on expeditions can take a number of forms. Criteria to be evaluated include:

- proper preparation
- participation
- individual contribution to trip
- co-operation with peers/group leader
- following safety guidelines
- performance of specific tasks (e.g. cooking, tents, hygiene, navigation)

Other evaluation techniques that may be used include:

Certification (e.g. first aid)
Awards
Extra-curricular project and events (e.g. Environment Week celebrations)
Simulations (e.g. computer, first aid)
Peer evaluation
Parent evaluation
Written tests
Checklists and rating scales
Research and investigations
Role playing and analogies
Displays, bulletins, bulletin boards
Subjective evaluation
Skill development and improvement (e.g. cross-country skiing, fitness)
Questionnaires
Small group evaluation
Autobiographies
Alternate projects (e.g. unable to attend expedition – alternate assigned)
General safety practices and attitudes
Anecdotal records by teacher or student
Readings to small groups or class
News bulletins

Appendices

APPENDIX A: ALBERTA EDUCATION'S POLICY ON CONTROVERSIAL ISSUES

BACKGROUND

Controversial issues are those topics which are publicly sensitive and on which there is no consensus of values or belief. By their nature, controversial issues generate diverse opinions and debate on the distinctions between right and wrong, justice and injustice, and on interpretations of fairness and tolerance. They include topics on which reasonable people may sincerely disagree.

Opportunities to deal with sensitive issues and topics are an integral part of the education programs and schooling process in Alberta. Alberta Education recognizes that education cannot remain neutral on all issues or avoid all topics that are controversial. Alberta Education also recognizes that courses of study and education programs offered in Alberta schools must handle controversial issues in a manner that respects the rights and opinions reflected in different perspectives, but that rejects extreme or unethical positions.

For sound judgments to be made, students should have experiences in selecting, organizing and evaluating information. The educational benefits to be gained by studying controversial issues include the development of critical thinking, moral reasoning, and an awareness and understanding of contemporary society.

POLICY

Alberta Education believes that studying controversial issues is important in preparing students to participate responsibly in a democratic and pluralistic society. Such study provides opportunities to develop students' capacities to think clearly, to reason logically, to open-mindedly and respectfully examine different points of view, and to reach sound judgments.

LEGISLATION

School Act

25(1) The Minister may by order do the following:
(c) subject to the rights of a board to provide religious instruction, prohibit the use of a course, education program or instructional material in schools; . . .

Other legislation:

Alberta Bill of Rights, R.S.A. 1980, Chapter A-16

Canadian Charter of Rights and Freedoms, Constitution Act, 1982

The Ministerial Order under section 25(1)(d) of the Act as cited in the Ministerial Orders and Directives section of this Policy Manual.

PROCEDURES

1. Sensitivity on the part of teachers, students and other participants in controversial issues shall be exercised to ensure that students and others are not ridiculed, embarrassed, intimidated or degraded for positions which they hold on controversial issues.

2. Information regarding controversial issues should:

a. represent alternative points of view, subject to the condition that resources used are not restricted by any federal or provincial law;
b. appropriately reflect the maturity, capabilities and educational needs of the students;
c. meet the requirements of provincially prescribed and approved courses of study and education programs; and
d. reflect the neighbourhood and community in which the school is located, as well as provincial, national and international contexts.

3. Controversial issues which have been pre-planned by the teacher and those which may arise incidentally in the course of instruction should be used by the teacher to promote critical inquiry rather than advocacy, and to teach students how to think rather than what to think.

4. The school should play a supportive role to parents in the areas of values and moral development, and shall handle parental decisions in regard to Controversial Issues with respect and sensitivity.

Alberta Education Policy Manual. 1989.

APPENDIX B: SUPPLEMENTARY INFORMATION SOURCES

INFORMATION SERVICES

ECA Online (Computer Network) – a computerized conference, message service and environmental information bulletin board. Parameters: 300–1200 baud, 8 data bits, 1 stop bit, no parity at 438–5793.

ENERGY MATTERS Inquiry Line – energy experts and a computer data bank provide information on how energy can be used wisely in the home. If you have any questions on anything related to home energy, DIAL "0," and ask for Zenith 22339 (Edmonton, 427–5300). Publications are available on topics ranging from heating systems to caulking and weatherstripping. You can also use ENERGY MATTERS Line to find out about other residential services offered by the Energy Efficiency Branch.

Energy Efficiency Branch
Alberta Energy
2nd Floor, 10010–106 Street
Edmonton, Alberta
T5J 3L8
427–5200

FIELD TRIP CENTRES

The following is a partial list of centres that provide hands-on experience for students in an aspect of energy conservation or resource conservation. Contact should be made directly with the resource centre to obtain details of what is offered to school groups or students.

Alberta Forest Service Museum
Forest Technology School
1176 Switzer Drive
Hinton, Alberta T0E 1B0
865–8211

Alberta Tree Nursery and Horticulture Centre
R.R. #6, 17507 Fort Road
Edmonton, Alberta T5B 4K3
Telephone: 422–1789 (in Edmonton)
198–5272 (toll-free through any government R.I.T.E. Operator – check your local telephone directory under "Government of Alberta").

Bennett Environmental Education Centre
Edmonton Public Schools
9703–94 Street
Edmonton, Alberta T6C 3W1
468–1439

Calgary Zoo
Botanical Gardens and Prehistoric Park
P.O. Box 3036, Station "B"
Calgary, Alberta T2M 4R8
265–9310
OR Zoo located at:
1300 Zoo Road N.E., Calgary, AB

Devonian Botanic Garden
University of Alberta
Edmonton, Alberta T6G 2E1
987–3054
OR located at:
Hwy 60, 15 km south of Hwy 16

Environmental Resource Centre
10511 Saskatchewan Drive
Edmonton, Alberta T6E 4S1
433–4808

Energeum
(Energy Resources Conservation Board)
640–5th Avenue S.W.
Calgary, Alberta T2P 3G4
297–4293

Fort Calgary Preservation Society
P.O. Box 2100, Station "M", #106
Calgary, Alberta T2P 2M5
290–1875
OR office located at:
750–9th Avenue S.E., Calgary, AB

Ft. McMurray Oil Sands Interpretive Centre
515 MacKenzie Blvd.
Ft. McMurray, Alberta T9H 4X3
743–7167

Glenbow Museum
130–9th Avenue S.E.
Calgary, Alberta T2G 0P3
264–8300

John Janzen Nature Centre
P.O. Box 2359
Edmonton, Alberta T5J 2R7
434–7446
OR located at:
Fort Edmonton Park, Fox Drive

TECHNICAL REPORTS

The following list of technical reports may provide you with more detail on energy and conservation projects.

Alberta Agriculture. 1987. *Low Energy Home Designs*. Edmonton: Alberta Agriculture.

American Section of the International Solar Energy Society. 1976. *Sharing the Sun! Solar Technology in the Seventies*, ed. K.W. Boer. Cape Canaveral, Florida.

Calhoun, Elizabeth. 1983. *20 Simple Solar Projects*. Emmaus, Pennsylvania: Rodale Press.

Energy Resources Conservation Board. 1987. *Energy Alberta 1987*. Calgary.

McCallum, Bruce. 1979. *Environmentally Appropriate Technology: Renewable Energy and Other Developing Technologies for a Conserver Society in Canada* 4th ed. Ottawa: Office of the Science Advisor, Fisheries and Environment Canada.

Nova Scotia Department of Mines and Energy. 1981. *One Hundred and One Solar Energy Projects*. Halifax.

CBC Enterprises – Box 500, Station A, Toronto, Ontario M5W 1E6 (416) 975–3500

Wonderstruck: Environment Alert
The Journal: The Greenhouse Effect
The Journal: Looting A Legacy

CBC Radio – Box 500, Station A, Toronto, Ontario M5W 1E6

David Suzuki's *Matter of Survival* series of audiotapes $10 each or series of five for $45. Cheques payable to CBC Radio.

Environment Council Library, Environment Council Library, Weber Centre, 5555 Calgary Trail, Edmonton, Alberta, telephone 427–5793.

One Man's Garbage, Another Man's Gold – video, 15 minutes.

Petroleum Resources Communication Foundation, 1250, 633–6th Avenue S.W., Calgary, AB T2P 2Y5.

Alaska Oil Spill – The Veco Response – describes the clean-up of the Exxon Valdez oil spill.
One Onion at a Time – shows the importance of finishing high school, and of taking math and science to lead to many careers in the petroleum industry.

Trans-Alta Utilities Corp. – 110–12th Avenue S.W., Box 1900, Calgary, AB T2P 2M1 267–7459 (Cheryl Corbill).

Acid Rain
Careers in the Electrical Industry

University of Alberta – Educational Media Services, Corbett Hall, 82 Avenue and 112 Street, Edmonton, AB T6G 2G4, 492–5039 (5040).

A Planet For The Taking – No. 1: "Human Nature"
The Journal: The Greenhouse Effect

SPECIAL INTEREST GROUPS – for Students

The following is a list of groups, organizations and associations that students can become involved with as part of their personal commitment to conservation and environmental protection. Services having a fee associated with them are designated with a ($) sign.

Organization	Resources
Alberta Forestry Association ($) 101 Alberta Block, 10526 Jasper Avenue Edmonton, Alberta T5J 1Z7 428–7582	– Volunteers accepted
Calgary Zoo ($) Botanical Gardens and Prehistoric Park P.O. Box 3036, Station "B" Calgary, Alberta T2M 4R8 265–9310 OR Zoo located at: 1300 Zoo Road N.E., Calgary, AB	– Members accepted in zoological society ($) – Quarterly magazine with membership – Special activities
Canadian Coalition on Acid Rain 112 Street and St. Clair Avenue W Suite 401 Toronto, Ontario M4V 2Y3	– Information packages – Encourage formation of support groups
Camrose International Institute ($) 4802–49 Avenue Camrose, Alberta T4V 0M7 672–8780	– Student memberships ($) – Free newsletter
Canadian Water Resources Association ($) Alberta Branch 48 Baker Crescent, N.W. Calgary, Alberta T2L 1R4 282–0405	– Memberships ($) – Newsletter with membership
Earth Island Institute ($) 300 Broadway, Ste. 28 San Francisco, CA 94113 U.S.A. (415) 788–3666	– Student memberships ($) – News magazine for members – Volunteers accepted for projects
Edmonton Recycling Society 11631–80 Street Edmonton, Alberta T5B 2N3 471–0071	– Volunteers accepted

Environment Week Association
642-21, 10405 Jasper Avenue
Edmonton, AB T5J 3S2
427–6310
OR office located at:
9820–106 Street, 12th Floor (interim)
Edmonton, Alberta T5K 2J6

- Teacher/school memberships ($)
- One free newsletter per school
- Referral to many different youth-oriented activities from many organizations

Environmental and Outdoor Education Council
The Alberta Teachers' Association
Barnett House
11010–142 Street
Edmonton, AB T5N 2R1
453–2411

- Memberships ($)
- Newsletter and journal
- Annual conference
- Travelling library
- Travelling library

Environmental Resource Centre
10511 Saskatchewan Drive
Edmonton, AB T6E 4S1
433–4808

- Resources available on environmental issues
- Information on site
- Speakers available

Ft. McMurray Oil Sands Interpretive Centre
515 MacKenzie Blvd.
Ft. McMurray, AB T9H 4X3
743–7166

- Hands-on activities
- Information packages
- Videos for loan
- Field trips

Friends of the Earth ($)
Suite 701, 251 Laurier Avenue W
Ottawa, ON K1P 5J6
(613) 230–3352

- Teaching resources and audiovisuals
- Regular and student memberships
- Newsletter with membership

Friends of Environmental Education
Society of Alberta (FEESA)
641-21, 10405 Jasper Avenue
Edmonton, AB T5J 3S2
427–6210

- Teacher memberships ($)
- Newsletter
- Teaching kits ($)

Green Teacher
95 Robert Street
Toronto, ON M5S 2K5
(416) 960–1244

- Energy issues/ecology materials for classroom
- Magazine ($)

Greenpeace Foundation ($)
1711B–16 Street N.W.
Calgary, AB T2M 3P1
261–4828
OR
10511 Saskatchewan Drive
Edmonton, AB T6E 2S1
433–4808

- Resource material
- Regular and student memberships ($)
- Magazine with membership
- Speakers' bureau
- Videos

CANADIAN ENVIRONMENTAL ORGANIZATIONS AND GOVERNMENT AGENCIES

Alberta Environment Network
10511 Saskatchewan Drive
Edmonton, AB T6E 4S1
(403) 433-9302

Alberta Wilderness Association
Box 6398, Station D
Calgary, AB T2P 2E1
(403) 283-2025

Atlantic Environment Network
180 St. John Street
Fredericton, NB E3B 4A9
(506) 453-0680

B.C. Environmental Network
2150 Maple Street
Vancouver, BC V6J 3T3
(604) 733-2400

Canadian Arctic Resources Committee
111 Sparks Street
Ottawa, ON K1P 5B5
(613) 236-7379

Canadian Coalition on Acid Rain
112 St. Clair Avenue, West, #401
Toronto, ON M4V 2Y3
(416) 968-2135

Canadian Environment Network
P.O. Box 1289, Station B
Ottawa, ON K1P 5R3
(613) 563-2078-3337

Canadian Environmental Law Association
243 Queen Street West, 4th Floor
Toronto, ON M9N 2H8
(416) 960-2284

Canadian Nature Federation
453 Sussex Drive
Ottawa, ON K1N 6Z4
(613) 238-6154

Canadian Organic Growers
Box 6408, Station J
Ottawa, ON K2A 3Y6

Catalyst Education Society
P.O. Box 99
Lillooet, BC V0K 1V0

Connexions
427 Bloor Street West
Toronto, ON M5S 1X7
(416) 960-3903

Conservation and Renewable Energy
Industry Council
Suite 209, 135 York Street
Ottawa, ON K1N 5T4

Ducks Unlimited Canada
1190 Waverly Street
Winnipeg, MB R3T 2E2
(204) 477-1760

Ecology Action Centre of Nova Scotia
3115 Veith Street, 3rd Floor
Halifax, NS B3K 3G9
(902) 454-7828

Energy Probe
225 Brunswick Street
Toronto, ON M5S 2M6

Federation of Ontario Naturalists
355 Lesmill Road
Don Mills, ON M3B 2W8
(416) 444-8419

Friends of the Earth
251 Laurier Avenue West, #701
Ottawa, ON K1P 5J6
(613) 230-3352

Greenpeace
578 Bloor Street West
Toronto, ON M5G 1K1
(416) 538-6470

Harmony Foundation
19 Oakdale Avenue
Ottawa, ON K1Y 3S3

Islands Protection Society
Box 688
Queen Charlotte City, BC V0T 1S0

Manitoba Environment Network
P.O. Box 3125
Winnipeg, MB R3C 4E6
(204) 956–1468

Manitoba Naturalists Society
#302–128 James Avenue
Winnipeg, MB R3B 0N8
(204) 943–9029

Northwest Wildlife Preservation
P.O. Box 34129, Station D
Vancouver, BC V6J 4N3
(604) 736–8750

Outdoor Recreation Centre of B.C.
336–1367 W. Broadway
Vancouver, BC V6H 4A9
(604) 737–3058

Ontario Environment Network
P.O. Box 125, Station P
Toronto, ON M5S 2S7
(416) 925–1322

Pollution Probe Foundation
12 Madison Avenue
Toronto, ON M5R 1S1
(416) 926–1907

Rainforest Action Society
P.O. Box 46695, Station G
Vancouver, BC V6R 4K8
(604) 734–7248

Recycling Council of Ontario
P.O. Box 310, Station P
Toronto, ON M5S 2S8
(416) 960–1025

Roseau Quebecois des Groupes Ecologistes
CP 1480, Place d'Armes
Montreal, PQ H2Y 3K8
(514) 982–9444

Saskatchewan Eco-Network
205–219 22nd Street East
Saskatoon, SK S7K 0G4
(306) 665–1915

Sea Shepherd Conservation Society
P.O. Box 48446, Bentall Centre
Vancouver, BC V7X 1A2
(604) 688–7325

Sierra Club of Ontario
2316 Queen Street East
Toronto, ON M4E 1G8
(416) 698–8446

Western Canada Wilderness Committee
20 Water Street
Vancouver, BC V6B 1A4
(604) 683–8220

Wildlife Habitat Canada
1704 Carling Avenue, #301
Ottawa, ON K2A 1C7
(613) 722–2090

World Wildlife Fund Canada
60 St. Clair Avenue East
Toronto, ON M5T 1N5
(416) 923–8173

Environment Canada, Communications Directorate

National Inquiries Centre
Terrasses de la Chaudiere
Ottawa, ON K1A 0H3
(819) 997–2800

Atlantic Region
15th Floor, 45 Alderney Drive
Dartmouth, NS B2Y 2N6
(902) 426–1930

Quebec Region
3 Baude Street
P.O. Box 606
Quebec, PQ G1R 4V7
(418) 648–7204

Ontario Region
25 St. Clair Avenue East
Toronto, ON M4T 1M2

Western and Northern Region
Twin Atria #2, 2nd Floor
4999–98 Avenue
Edmonton, AB T6B 2X3
(403) 468–8074

Pacific and Yukon Region
3rd Floor, Capilano 100
Park Royal South
W. Vancouver, BC V7T 1A2
(604) 666–5900

Environmental Partners Fund

Alberta
Twin Atria #2, 2nd Floor
4999–98 Avenue
Edmonton, AB T6B 2X3
(403) 468–5887

Manitoba
457 Main Street
Winnipeg, MB R3B 3E8
(204) 983–2110

Newfoundland
P.O. Box 5037
St. John's, NF A1C 5V3
(709) 772–5488

New Brunswick
527 Queen Street, Box 400
Fredericton, NB E3B 4Z9
(506) 452–3286

Northwest Territories
P.O. Box 2970
Yellowknife, NT X1A 2R2
(403) 920–8500

Nova Scotia
15th Floor, 45 Alderney Drive
Dartmouth, NS B2Y 2N6
(902) 426–6473

Ontario
25 St. Clair Avenue East
Toronto, ON M4T 1M2
(416) 973–6467

Prince Edward Island
P.O. Box 426
Charlottetown, PE C1A 7K

Quebec
P.O. Box 6060, Hauteville
Quebec, PQ G1V 4H5
(418) 648–4296

Saskatchewan
241–1901 Victoria Avenue
Regina, SK S4P 3R4
(306) 780–6002

Yukon
#101–204 Range Road
Whitehorse, NT Y1A 3V1
(403) 667–3400

Provincial Environment Departments

Alberta
Department of Environment
14th Floor, Oxbridge Place
9820–106 Street
Edmonton, AB T5K 2J6
(403) 427–6236

British Columbia
Ministry of Environment
Parliament Buildings
Victoria, BC V8V 1X5
(604) 387–5669

Manitoba
Department of Environment
Room 350 Legislative Building
450 Broadway Avenue
Winnipeg, MB R3C 0V8
(204) 945–3522

New Brunswick
Department of Municipal Affairs and Environment
2nd Floor, 364 Argyle Street
P.O. Box 6000
Fredericton, NB E3B 5H1
(506) 453–2558

Newfoundland
Department of Environment
Confederation Building, West Block
4th Floor, P.O. Box 4750
St. John's, NF A1C 5T7

Nova Scotia
Department of Environment
Terminal Road Building
5151 Terminal Road, 5th Floor
P.O. Box 2107
Halifax, NS B3J 3B7
(902) 424–5300

Ontario
Ministry of Environment
135 St. Clair Avenue W., 14th Floor
Toronto, ON M4V 1P5
(416) 323–4272

Quebec
Ministere de l'Environment
3900, rue Marly, 6 etage
Ste-Foy, PQ G1X 4E4
(418) 643–7860

Saskatchewan
Department of Environment
Room 214, Walter Scott Building
3085 Alberta Street
Regina, SK S4S 0B1
(306) 787–6111

Northwest Territories
Department of Renewable Resources
P.O. Box 1320
Yellowknife, NT X1A 2L9

Yukon Territories
Department of Renewable Resources
P.O. Box 2703
Whitehorse, YT Y1A 2C6
(403) 667–5877

ENVIRONMENTAL EDUCATION RESOURCE GUIDE (U.S.)

Organizations and Guides Offering Lesson Plans and School Activities

Alliance of Environmental Educators has a variety of environmental education curricula. 2111 Wilson Blvd., Suite 701, Arlington, VA 22201.

American Nature Study Society promotes environmental education through "Nature Study" magazine, meetings, workshops and field trips. 5881 Cold Brook Rd., Homer, NY 13077. Telephone: (607) 749–3655.

Biological Science Curriculum Study (BSCS). A variety of materials for teachers and students including textbooks, laboratory manuals, subject modules and films. Contact BSCS, The Colorado College, Colorado Springs, CO 80903. Telephone: (303) 473–2233.

Conservation and Renewable Energy Information Referral Service. Public inquiries and bibliographies on renewable and non-renewable energy. Telephone: 1–(800) 523–2929.

Global Tomorrow Coalition has environmental education curricula on tropical forests, marine and coastal pollution and other global issues. 1325 B-Street, N.W., Washington, DC 20005. Telephone: (202) 628–4016.

Institute for Earth Education. "Earthkeepers" is an educational program for helping young people live in harmony with the earth and other resources. P.O. Box 288, Warrenville, IL 60555.

National Geographic Society . Two filmstrip sets about energy and pollution: "Challenges to a Healthy Environment" (Advanced) and "This World of Energy: II" (Intermediate and Advanced). Educational Services, Dept. 90, Washington, DC 20036.

National Audubon Society publishes newsletters, newspapers and posters for a fee. New unit available on wetlands. Education Division, 950 Third Ave., NY, NY 10022. Telephone: (212) 832–3200.

National Wildlife Federation nature education catalogue lists science activity series, project kits, books, videos, etc. Attn: School Programs, 8925 Leesburg Pike, Vienna, VA 22184-0001.

Science and Environmental Education Resource Guide, 1989 directory of national science and environmental education resources. California State Department of Education, 721 Capital Mall, Sacramento, CA 95814.

Sierra Club provides free teachers' newsletter, list of environmental education materials, filmstrips, slides and videos, and a literature list for children. 703 Polk St., San Francisco, CA 94109. Telephone: (415) 776–2211.

U.S. Environmental Protection Agency directory of environmental education materials for grades K–12. Office of Community and Intergovernmental Relations, Mail Code A-108 EA, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460. Telephone: (202) 382–4454.

Zero Population Growth teacher training programs and K–12 curriculum. Population Growth Education Program, 1400 16th Street, NW, Suite 320, Washington, DC 20036. Telephone: (202) 332–2200.

Lesson Plan and School Activities

A-Way with Waste curriculum guide about recycling for grades K–12. Washington Dept. of Ecology, 350 150th Ave., NE, Redmond, WA 98052.

California State Environmental Education Guide (1987). Eight instructional units and six action projects (K–6). ($17.95) Alameda County Office of Education, Library Dept., EG, 313 W. Winton Avenue, Hayward, CA 94544-1198.

California Energy Extension Service—Energy Action in Schools. Annotated bibliography of sample energy education materials, K–6 and 7–12. Governors Office of Planning and Research, 1400 10th Street, Room 209, Sacramento, CA 95814.

Green Box. Set of 178 activity cards for environmental educators (K–8). Cost is approx. $40. Contact Humboldt County Office of Education, Environmental Education Program, 901 Myrtle Avenue, Eureka, CA 95501. Telephone: (707) 445–5411.

Living Lightly in the City (K–6). *Living Lightly on the Planet* (7–12). Schlitz Audubon Centre, 1111 East Brown Deer Road, Milwaukee, WI 53217. Telephone: (414) 352–2880.

Outdoor Biology Instructional Strategies (OBIS). Set of activity cards for grades 4–9. Contact Delta Education, Inc., P.O. Box M, Nashua, NH 03061.

Project WILD wildlife education program for school teachers. Western Regional Environmental Education Council, Boulder, CO; Western Association of Fish and Wildlife Agencies (WAFWA); or your state fish and game department.

Project Learning Tree (PLT) activity manual and teacher training workshops for environmental educators (K–12) focusing on plant life. American Forest Institute, 1619 Massachusetts Ave., NW, Washington, DC 20036.

Rainbow Child Programs (K–6). Earth awareness lesson plans and teacher training workshops. Rainbow Child Programs, 1705 Balsam Lane, Villanova, PA 19085. Telephone: (215) 525–4133.

Sharing Nature with Children and *Listening to Nature*. Two books by Joseph Cornell Workshops. Ananda Publications, 14618 Tyler Foote Rd., Nevada City, CA 95959. Telephone: (916) 292–3225 or (800) 843–5272.

Toxics in My Home? You Bet! Curriculum units on Household Hazardous waste, K–12 (also in Spanish) Golden Empire Health Planning Centre, 2100 21st Street, Sacramento, CA 95818. Telephone: (916) 731–5050.

Toxics: Taking Charge. A unit for grades 4–6. Supplement to the *California State Environmental Education Guide*. Alameda County Office of Education, 313 W. Winton Avenue, Hayward, CA 94554-1198.

Films, Videos and Plays

Bullfrog Films, Inc. rents films and videos with environmental themes. Bullfrog Films, Oley, PA 19547. Telephone: (215) 779–8226.

Corporation for Public Broadcasting 1990—Year of the Environment-Environmental Resource Compendium, $10. PBS, Elementary and Secondary Service, 1320 Braddock Place, Alexandria, VA 22314. Telephone: (202) 955–5110.

Earth Child. A simple one-act play/musical designed to be a centre-piece for a two- to four-week mini-unit on the environment. K–12 Peace Child International, 3977 Chain Bridge Road, Fairfax, Virginia 22030. Telephone: (703) 385–4494.

Facets. Video distribution centre that carries hard-to-find environmental education videos. 1517 W. Fullerton Avenue, Chicago, IL 60614. Telephone: 1–(800) 311–6197.

Film Distribution Centre rents environmental films and videos. 13500 NE 124 Street, Suite 2, Kirkland, WA 98034-8010. Telephone: (206) 820–2592.

The Lorax. Animated film about destruction of natural resources and pollution (also, see the Dr. Seuss book by this title–Random House 1971.) All ages. The Film and Video Library, University of Michigan, 400 Fourth St., Ann Arbor, MI 48103-4816, or Population Reference Bureau, Inc., 777 14th St., NW, Suite 800, Washington, DC 20005.

Media Network. Environmental education films and videos. Also distributes *Greenjems*, guide listing available environmental films and videos. $6.50 individuals, $9.50 institutions. 121 Fulton, 5th Floor, New York, NY 10038. Telephone: (212) 619–3455.

Worldlink: Spaceship Earth: Our Global Environment. First in a series of video travels around the world to present segments on environmental problems and solutions. Hosted entirely by young people. Includes teacher guide. 8755 W. Colgate Avenue, Los Angeles, CA 90048. Telephone: (213) 273–2636.

Electronic Bulletin Boards

National Geographic Kids Network. Grades 4–6. Contact Dorothy Perreca, Project Manager, Kids Network, Educational Media Division, National Geographic Society, Washington, DC 20036. Telephone: (202) 775–6580.

Eco-net is an electronic network for environmental information. Write: Institute for Global Communication, 3228 Sacramento St., San Francisco, CA 94115. Telephone: (415) 923–0900.